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CITIZENS' ENVIRONMENTAL SAMPLING COMMITTEE

Thursday, May 20, 1993

Campbell Room
Arvada City Hall
8101 Ralston Road
Arvada, Colorado

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

ADMIN RECCRD

SW-A-003814

1/103

PARTICIPANTS PRESENT

JIM LAVELLE, Chair - Health Advisory Panel

BINI ABBOTT - Health Advisory Panel and Citizen Representative

GALE BIGGS - Rocky Flats Cleanup Commission

PAULA ELOFSON-GARDINE - Environmental Information Network

MIKE GUILLAUME - EG&G

KEN KORKIA - Rocky Flats Cleanup Commission

ANN LOCKHART - Colorado Department of Health

GREG MARSH - Rocky Flats Cleanup Commission and Citizens Against Rocky Flats Contamination

BOB MEYER - Radiological Assessments Team on Phase 2

NORMA MORIN - Colorado Department of Health

BOB QUILLIN - Colorado Department of Health

NIELS SCHONBECK - Health Advisory Panel

HANK STOVALL - Health Advisory Panel

JIM STONE - Colorado State University

ROB TERRY - Colorado Department of Health

P R O C E E D I N G S

(9:20 a.m.)

DR. LAVELLE: Good morning, everyone. We're a little bit more of an intimate group today, but I think we may as well go ahead and get started.

I guess we'll cover the real important stuff first. There are Cokes in the refrigerator, so help yourself.

Also, I think that although I don't see very many faces here that aren't pretty familiar with this group, there's at least one person here that's pretty new, Nancy Hunter from ENSR working with the Colorado Department of Health, and so I think it would be good if we did go around and introduce ourselves.

Also, Kathy, our court reporter would like you to introduce yourselves and give a little bit of an affiliation so that we have an idea of who all is here.

I'm Jim LaVelle. I'm a member of the Health Advisory Panel and work with Camp, Dresser & McKee here in Denver.

Greg, go ahead.

MR. MARSH: I'm Greg Marsh, and I'm on the Rocky Flats Cleanup Commission and a board member of Citizens Against Rocky Flats Contamination and some other

1 antagonizing groups.

2 DR. MEYER: I'm Bob Meyer. I'm working
3 with the Radiological Assessments Corporation Team on
4 Phase 2 of the study.

5 DR. MORIN: I'm Normie Morin. I'm with
6 the Health Department.

7 MS. LOCKHART: Ann Lockhart, Senior
8 Public Information Officer for the Colorado Department of
9 Health on this project.

10 MS. HUNTER: I'm Nancy Hunter. I'm
11 with ENSR Consulting & Engineering.

12 MR. QUILLIN: I'm Bob Quillin with the
13 Health Advisory Panel and the Health Department.

14 MR. STONE: I'm Jim Stone with Colorado
15 State University, radial ecology group that's doing the
16 soil sampling.

17 MR. KORKIA: I'm Ken Korkia. I'm the
18 technical assistant for the Rocky Flats Cleanup
19 Commission.

20 MR. STOVALL: Hank Stovall, Health
21 Advisory Panel, member of Broomfield City Council.

22 MS. ABBOTT: Bini Abbott, Health
23 Advisory Panel, citizen representative.

24 DR. BIGGS: Gale Biggs. I'm with the
25 Rocky Flats Cleanup Commission.

1 MS. ELOFSON-GARDINE: Paula Elofson-
2 Gardine. I'm the executive director for the
3 Environmental Information Network (EIN), Inc.

4 DR. LAVELLE: Okay. And since he
5 appears to have stepped out for a second, I think I'll
6 also introduce Mike Guillaume, who will come back in in a
7 second. He's from EG&G. He's the project manager for
8 the sampling that's going on in OU-3, which is the off-
9 site area around Rocky Flats.

10 MS. ABBOTT: Does she know how to spell
11 that?

12 DR. LAVELLE: Probably not, but neither
13 do I.

14 Before we get started, just as a quick
15 update. For those of you who missed the tour at CSU, we
16 did have a very good tour. Greg made it. Bob was there,
17 Ann, Nancy, myself, and Ken came kind of late but he made
18 it. Also Bill--

19 MR. MARSH: --Kemper.

20 DR. LAVELLE: --Kemper was there. And
21 Leroy Moore all made it. And so we had a good group.
22 Actually, that group was just about the perfect size to
23 go around and ask questions and so it worked out very
24 well.

25 I thought I would ask at this time--I

1 was hoping there would be a few more people here but--to
2 see if there was interest in asking CSU if we could maybe
3 set up a second tour. I know Paula unfortunately missed
4 that. Mix-up in timing. So I think there's at least one
5 person.

6 DR. MORIN: I'm interested.

7 DR. LAVELLE: Normie.

8 DR. BIGGS: I'd like to go but I'm
9 fairly busy until about July.

10 DR. LAVELLE: Okay, we'll take that
11 into advisement. Hank? Bini?

12 MS. ABBOTT: I've been.

13 MR. KORKIA: I want to see the first
14 half.

15 DR. LAVELLE: You want to see the first
16 half? Okay. Okay, I think there's sufficient interest.

17 MS. ELOFSON-GARDINE: Did Niels say he
18 wanted to go?

19 DR. LAVELLE: And I know Niels is real
20 interested in going up there. I think that Niels is
21 constrained to Thursdays, usually. Is that an okay date
22 to talk to CSU about? Thursday mornings.

23 MR. MARSH: Well, I tried to talk to
24 Niels yesterday and he was away for several weeks, I
25 think.

6

1 DR. LAVELLE: He called me yesterday
2 and said he was going to be here.

3 DR. MORIN: No. He's teaching all this
4 summer.

5 MR. MARSH: Where?

6 DR. MORIN: Metro.

7 MR. MARSH: He didn't tell me that.
8 Well, I got some bad information.

9 DR. MORIN: If you call me, I'll give
10 you the number to his office.

11 DR. LAVELLE: If I did talk to them
12 about a Thursday morning, would that be--is that
13 reasonable? As good as any day?

14 MS. ELOFSON-GARDINE: How far are we
15 talking here?

16 DR. BIGGS: About the third week of
17 July. I don't know, the third Thursdays of every month,
18 everyone seems to have meetings.

19 DR. LAVELLE: Is that right? That's a
20 bad date?

21 See, I told you Niels was going to be
22 here.

23 MS. ELOFSON-GARDINE: Your name was
24 just being taken in vein, Niels.

25 DR. SCHONBECK: I always arrive too

1 late.

2 DR. LAVELLE: Actually, Niels, we're
3 talking about a second tour of the CSU facilities.

4 DR. SCHONBECK: Okay.

5 DR. MORIN: How about the 22nd of July?

6 DR. LAVELLE: That's a possibility.

7 Are people comfortable with putting it off until July?

8 MS. ELOFSON-GARDINE: Yeah, I have no
9 problem with that.

10 DR. MORIN: The 22nd of July?

11 MS. ABBOTT: That would be the third
12 week that he said he couldn't.

13 MR. GUILLAUME: The only difficulty in
14 putting it off is the lab turn-around time that will be
15 attached to that date that will delay results from the
16 samples.

17 DR. LAVELLE: Actually, it ended up--
18 and, Jim, you can jump in here, too--is that we really
19 didn't do a whole lot of actual sample preparation. We
20 basically just looked at how it was done. And I kind of
21 think that after having gone through it, I can see the
22 problem with trying to actually do anything there. It
23 really is along procedure.

24 MR. GUILLAUME: Right.

25 DR. LAVELLE: So I kind of think that

1 we'll have to proceed with the splits and such just at
2 pace and have the tour just be an information tour rather
3 than an actual work tour. Jim, is that correct?

4 MR. STONE: Yeah.

5 DR. BIGGS: What was the date you threw
6 out?

7 DR. MORIN: The 22nd of July.

8 MS. ELOFSON-GARDINE: I've got a
9 meeting that day. How about the 13th? That's Tuesday
10 the week before.

11 DR. MORIN: That would work for me.
12 The 13th.

13 MS. ABBOTT: But can Niels go on a
14 Tuesday?

15 DR. SCHONBECK: Yes.

16 DR. MORIN: What about Gale? Does that
17 work for you?

18 DR. BIGGS: Yeah, looks it does at the
19 moment, yeah.

20 DR. LAVELLE: Okay. Well, we'll take
21 that date. I'll contact CSU and see if we can put
22 together a tour. I haven't talked to them directly about
23 a second tour yet, but they certainly indicated that
24 they're happy to talk with people any time.

25 MR. STONE: As far as I'm concerned,

1 that date will be fine, but we need to check with Ward's
2 schedule because I know he'd like to be there.

3 DR. LAVELLE: Yeah. And I know he's
4 going to spend some time in Savannah River, right, this
5 summer sometime?

6 MR. STONE: I've given up trying to
7 keep up with his schedule.

8 DR. MORIN: The Health Physics Society
9 meeting is in Atlanta. Is he going to be there?

10 DR. LAVELLE: I don't know but I
11 wouldn't be surprised.

12 MR. MARSH: The national? When is
13 that?

14 DR. MORIN: The 12th and 13th of July.

15 DR. LAVELLE: It might be just as well
16 to steer away from those dates, then, because it wouldn't
17 surprise me at all if he was going to attend those
18 meetings. Those are pretty important in that field. So
19 let's think about a different date.

20 DR. MORIN: Paula, what's the second
21 option?

22 MS. ELOFSON-GARDINE: Thursday that
23 week, the 15th?

24 DR. MORIN: I can't do it on the 15th.
25 Any time the next week.

1 MS. ELOFSON-GARDINE: How about the
2 20th.

3 DR. MORIN: Will that work for
4 everybody else who's interested?

5 DR. SCHONBECK: Are you talking about
6 the 20th of July? What day of the week is it?

7 DR. MORIN: Tuesday.

8 DR. SCHONBECK: That's fine.

9 DR. MORIN: Okay. How large a group
10 will you take or would you prefer?

11 MR. STONE: The optimal size is
12 probably around ten people, eight to ten people. If it's
13 twelve or so. Any more than that, we could still do it.
14 We'd just split it up into two groups, probably, where
15 we'll take half the people out to the soil prep area
16 first and then swap out.

17 DR. LAVELLE: Okay. I guess it will
18 probably end up being six to eight, is my guess. Okay.

19 I think that from now on we're probably
20 going to get into a little different mode than we've been
21 in in this committee, and that is a much more interactive
22 kind of discussion about sampling sites. We have a
23 number of them that have been suggested, and we have a
24 summary of the ones that we got before this meeting, and
25 then Paula and--who else turned one in? Susan turned a

1 couple of additional possibilities in just today. Or was
2 it yesterday? Just very recently anyway. And, of
3 course, Gale gave us some suggestions at the last
4 meeting.

5 And what I thought we could really do
6 is sort of start locating these on this map. we could
7 compare them. These sampling sites up here are the ones
8 that have been or hopefully will be soon sampled in the
9 OU-3 investigations.

10 And Mike Guillaume is here to explain
11 more about where those samples were taken or answer any
12 questions about that sampling.

13 Jim Stone is here also, from CSU, so we
14 could get an idea of when we locate our possible
15 locations up here, has CSU sampled nearby, and just get
16 an idea of what sampling has been done and where these
17 suggestions fit into that sampling.

18 So I thought, basically, what I would
19 do, for those people who are here, is sort of let them
20 come up and tell us more or less where on this map they
21 had suggested sampling. I know, Gale, our map doesn't go
22 far enough for you, so we'll deal with that differently.

23 DR. BIGGS: Okay. What I'd like to do
24 is, whenever it's appropriate, take a few minutes and lay
25 out the criteria that I would be looking for in trying to

1 locate those sampling sites.

2 DR. LAVELLE: That's excellent. And we
3 want to, in fact, talk about that, not just specifically
4 for your samples but, in general, what are the criteria
5 that we want to think about in locating the samples and
6 proceeding down the road.

7 The first name I have on the list is
8 Ken Korkia. So if you could give us an idea of what your
9 sampling sites were.

10 Can we mark on this map?

11 MR. GUILLAUME: Sure, we can go ahead
12 and do that.

13 DR. LAVELLE: Are you sure?

14 MR. GUILLAUME: Yeah. I also have an
15 aerial photo of approximately that same area that for
16 some people may be easier to read.

17 DR. LAVELLE: Why don't we sort of get
18 an idea of the locations now and then maybe, as we're
19 starting to discuss criteria, we could kind of gather
20 around the aerial photo.

21 MR. GUILLAUME: I'll see if there's any
22 more tape and we can put Jim's map up.

23 MR. STONE: I've got this map which
24 might provide too much detail.

25 DR. LAVELLE: All Ken needs is Highway

1 93.

2 MR. STONE: Well, it's on there along
3 with a few others.

4 MR. KORKIA: My concern with this is
5 that we have a 360 degree view of Rocky Flats Plant in
6 terms of where the contamination might have gotten off.
7 So from what I can tell, we have pretty much a 270 degree
8 view looking around, but there's still an area back here
9 where, about 45 degrees, where we don't have a lot of
10 sampling, or I haven't seen a lot of sampling that's been
11 taken.

12 So I would like to see something taken
13 in the northwest corner of the plant, and the Rock Creek
14 Drainage would be one of my first choices and looking
15 mainly for radial of nuclides and possible metals, and
16 the priority on that would be mainly Plutonium to look
17 for radial nuclide contamination.

18 Some other possibilities are, looking
19 at the western side of the plant, this is kind of a
20 southwest location, looking at about the approximate
21 juncture of Leyden Road and Highway 93, would be a choice
22 I would have.

23 The other one would be going up towards
24 the northwest area, and that would be at the mouth of
25 Eldorado Canyon. Those would be my three choices for

1 additional sampling spots.

2 DR. LAVELLE: Jim, is this a map we can
3 work on, or would you rather not have us on this one?

4 MS. ELOFSON-GARDINE: Can we put some
5 pieces of tape on there with some red marks or something?

6 MR. STONE: You can mark all over it.
7 That's fine.

8 DR. LAVELLE: Actually, Ken, why don't
9 you go ahead and just make a little dot or something.

10 MS. ELOFSON-GARDINE: Put X's, Ken.
11 They're easier to see. Are you a circle man, Ken?

12 DR. LAVELLE: He has an X, but he put a
13 circle, too.

14 MR. GUILLAUME: Are people aware of the
15 Rocky Flats plant's soil sampling, annual soil sampling,
16 plan that occurs every year and has been for ten years?
17 That goes from a radius all the way around the plant from
18 one mile and two miles, so they're sampling in a 360
19 degree area, and they go from the center of the plant,
20 they go out one mile and two miles.

21 MR. MARSH: What kind of sampling?
22 What are you talking about?

23 MR. GUILLAUME: This is for soil
24 sampling, surface soil. And it's using a Rocky Flats'
25 method which goes down about 5 centimeters. This is done

1 on an annual basis, and we have about ten years' worth of
2 data.

3 DR. MEYER: What's the number of
4 samples in a circle?

5 MR. GUILLAUME: I'm not quite sure.

6 DR. MEYER: Five or a hundred?

7 MR. GUILLAUME: No. Twenty. There's
8 also the data from the gravel operation. Prior to the
9 gravel operation up in the northwest corner, we did some
10 surface soil sampling, and we have that data as well.

11 MR. MARSH: When? Before that land was
12 disturbed?

13 MR. GUILLAUME: Yes. Well, not prior
14 to the first, but to the current operation that's going
15 on right now. That was done like, I believe, the end of
16 1989.

17 MR. MARSH: How many samples were taken
18 up there?

19 MR. GUILLAUME: This is just from
20 memory. I'd say about a dozen.

21 MS. ELOFSON-GARDINE: Mike, with those
22 samples that are 5 centimeters, are you doing any
23 analysis on different sections of that 5 centimeters, or
24 just composite?

25 MR. GUILLAUME: No, it's just one

1 composite sample.

2 MS. ELOFSON-GARDINE: So you don't have
3 any surface dust samples.

4 MR. GUILLAUME: Well, we consider--

5 DR. LAVELLE: Basically, Mike, that
6 sampling was what you demonstrated at the 2 soil
7 sampling?

8 MR. GUILLAUME: Yes. That's the exact
9 same method.

10 DR. MEYER: How far back does that go?

11 MR. GUILLAUME: Once again, I know
12 there's several years of data, and I would approximate it
13 ten.

14 MS. ABBOTT: Could we get copies of
15 that from the back years?

16 MR. GUILLAUME: I'm sorry, I should
17 have brought what we call the Remedy Report, which is a
18 document that the OU-3 project produced in 1990, and it
19 summarizes all of the historical data that was done for
20 McKay, going back to '77, Crane Hardy Report, you know,
21 all of these types of things, and it documents and shows
22 all the results of that annual sampling as well.

23 MR. MARSH: Did you say McKay?

24 MR. GUILLAUME: Yes. The lawsuit.
25 Settlement agreement. There was a great deal of sampling

1 related to that litigation.

2 MS. ELOFSON-GARDINE: Does that include
3 status report from Rick Laughton (phonetic) on that
4 revegetation project and the plowing?

5 MR. GUILLAUME: Yes, it does.

6 DR. LAVELLE: Okay, the next person on
7 the list isn't here so I'm going to try this, but those
8 of you that are more familiar with the area than I am
9 maybe can help me make an X in generally the right spot.

10 This is from Janette Feijoo who is a
11 Walnut Creek resident. And her suggestions were school
12 land in Walnut Creek Subdivision.

13 MS. ELOFSON-GARDINE: Jim, do you want
14 to read them off and I'll make them for you.

15 DR. LAVELLE: Sure, that will be fine.

16 MS. ELOFSON-GARDINE: Since we're more
17 familiar with the area than you are.

18 DR. LAVELLE: Absolutely.

19 MS. LOCKHART: She did not mark a map.
20 I have the originals.

21 DR. LAVELLE: Okay, she didn't mark a
22 map so all we can do is kind of get in the general area
23 anyway.

24 MS. LOCKHART: She just said off of
25 Union Street.

1 MS. ELOFSON-GARDINE: Okay, so what
2 have you got?

3 DR. LAVELLE: School land in Walnut
4 Creek Subdivision.

5 The next one was ponds behind Walnut
6 Creek.

7 MS. ABBOTT: And I think she really
8 means kind of to the northwest.

9 MS. ELOFSON-GARDINE: So you think
10 that's some of the drainage areas between Great Western
11 Reservoir and Walnut Creek?

12 MR. STOVALL: Paula, in talking to
13 those people, they were interested in areas immediate in
14 their neighborhood.

15 MS. ELOFSON-GARDINE: So this is Walnut
16 Creek right here. So these two ponds. Did they specify
17 both ponds.

18 DR. LAVELLE: It just says "ponds."

19 MS. ELOFSON-GARDINE: This little
20 subdivision right here is Walnut Creek, so it looks like
21 the ponds would be approximately here and here.

22 MR. QUILLIN: Was there any indication
23 as to whether they're talking about water or sediments?

24 DR. LAVELLE: There isn't here, and
25 that would be an interesting question to ask and might be

1 interesting to consider, whether or not we want to look
2 at sediment.

3 Then the final suggestion was the
4 entrance area of Walnut Creek.

5 MS. ELOFSON-GARDINE: That's all in
6 that same area right there.

7 DR. LAVELLE: I think that's probably
8 good enough. I think we can say that they would like to
9 have Walnut Creek covered.

10 Maybe we should go on to Lucile Pearce
11 who is also a resident in Walnut Creek and also isn't
12 here. She made suggestions--by the way, Janette said
13 radioactive and other contaminants of concern to look
14 for.

15 MS. LOCKHART: Lucile marked a map.

16 MS. ELOFSON-GARDINE: Pretty much the
17 same area. One, and then 2 here and 3 here.

18 DR. MEYER: What's her name again, Jim?

19 DR. LAVELLE: Lucile Pearce. And both
20 she and Janette are Walnut Creek residents.

21 Okay, the next person on the list is
22 Jim Fisher from the North Jeffco Park & Recreation
23 District.

24 MS. ELOFSON-GARDINE: They want their
25 sports complex area sampled; right?

1 DR. LAVELLE: And they want their
2 sports complex area sampled, yes.

3 MS. ELOFSON-GARDINE: And they've got
4 the money to do it.

5 DR. LAVELLE: West of 89th and Alkire.

6 MS. LOCKHART: Here's his map.

7 DR. LAVELLE: West of 89th and Alkire.

8 MS. ABBOTT: That's what we've got.

9 DR. LAVELLE: Okay. Second one is East
10 of 85th and Indiana.

11 MS. ELOFSON-GARDINE: Okay. There's
12 another one. What else have you got?

13 DR. LAVELLE: Okay, let's move on here.
14 Jim Stone

15 MS. ELOFSON-GARDINE: Which Jim Stone?

16 MR. STONE: It's a different Jim Stone.

17 MR. KORKIA: I know what he's talking
18 about.

19 DR. LAVELLE: Okay, you can come up and
20 help. This is not the CSU Jim Stone. The north,
21 northwest, and west entrances to Standley Lake.

22 MS. ELOFSON-GARDINE: All right, so he
23 wants here and he wants this, approximately, and this,
24 approximately. What else you got?

25 DR. LAVELLE: Leroy Moore wanted a

1 sample in Leyden somewhere.

2 MS. ELOFSON-GARDINE: Well, we asked
3 for a Leyden sample, too.

4 DR. LAVELLE: Did he put anything on
5 the map?

6 MS. LOCKHART: He just called so I have
7 a phone message that Ruth took. Plutonium in Leyden.

8 DR. LAVELLE: Okay, that's what it says
9 here.

10 MS. ELOFSON-GARDINE: We took a sample
11 from the lake bed area, but we were more interested in
12 the old school yard. So, let's see, here's Leyden Lake.
13 I wish they had streets on here.

14 MS. ABBOTT: Paula, can you find 82nd
15 and Quaker? I imagine it's still called Quaker when it
16 goes through Leyden. I'm not positive.

17 MS. ELOFSON-GARDINE: After it goes
18 around the water tower? That's Quaker here?

19 MS. ABBOTT: Well, it's definitely
20 Quaker once it gets up to the pre-school.

21 MS. ELOFSON-GARDINE: We know how to
22 get places. We just never know what they're called.

23 MS. ABBOTT: As it goes through Leyden,
24 I would assume it's still called Quaker.

25 MS. ELOFSON-GARDINE: This aerial's

1 very helpful.

2 MS. ABBOTT: Paula, it is called Quaker
3 all the way along.

4 MS. ELOFSON-GARDINE: Would this be
5 approximately Quaker or would this be?

6 MS. ABBOTT: Let me look. Here's a
7 road map.

8 (Discussion off the record.)

9 DR. MORIN: Can I make a request? If
10 anybody is going to say something is real important that
11 they want to make sure gets on this transcript, they need
12 to identify themselves.

13 DR. LAVELLE: And then Leroy had two
14 locations. The other was northwest portion of Rocky
15 Flats site. So up near where Ken was suggesting.

16 MS. ELOFSON-GARDINE: So where Ken
17 already marked, put another X here.

18 MS. LOCKHART: He says on the hill or
19 below or near the highway.

20 MS. ABBOTT: So, then, he would be
21 thinking toward that Rock Creek, where that jog leg is.

22 MS. ELOFSON-GARDINE: Where Ken's
23 already marked?

24 DR. LAVELLE: In that general area,
25 yeah.

1 MS. ABBOTT: I would think a little
2 north of there where the dog leg is, in other words,
3 where Highway 93 joins Highway 128.

4 MS. ELOFSON-GARDINE: That's more near
5 the mouth of Eldorado Canyon there.

6 MS. ABBOTT: Well, I mean, that's my
7 guess when he talks about "hill."

8 MS. ELOFSON-GARDINE: Oh, maybe around
9 the hill where that old restaurant burned down?

10 MS. ABBOTT: Well, except I think where
11 the wind energy plant--right behind the wind energy
12 plant.

13 MS. ELOFSON-GARDINE: That's right
14 here. So it sounds like we're still looking at the
15 proximity.

16 MS. ABBOTT: That's my guess.

17 MS. ELOFSON-GARDINE: We'll put another
18 X there and if we hone in on a bunch of commonalities, we
19 can go from there.

20 Okay, what else you got?

21 DR. LAVELLE: Okay, the next--why don't
22 we let Greg come up and give us his, and then, Paula, why
23 don't you do yours, and then we'll have Gale come up and
24 take us off the map.

25 DR. BIGGS: Do I get to draw on the

1 wall?

2 MR. MARSH: The sample--I only chose
3 one sampling point, and I don't actually know where the
4 sampling point is, but the instructions that I gave on
5 the back of the document define how the sample is to be
6 taken. The definition of where I want the sample taken
7 is on the back of the document that I submitted.

8 MS. LOCKHART: And that's in this
9 handout.

10 MR. MARSH: And I don't know if they
11 transcribed that verbiage or not.

12 MS. LOCKHART: We just copied the
13 second sheet.

14 MR. MARSH: Okay. The sample, the
15 general location, is in the gravel pit called the Jeffco
16 Quarry by some and other names by others.

17 MS. ELOFSON-GARDINE: That's another
18 area that's similar to Leroy's and Ken's. That's right
19 here.

20 MR. MARSH: Yeah. And the method of
21 sampling and the persons who do the sampling and analysis
22 is more important to me than the sample location itself,
23 except that the protocol for taking this sample is
24 critical, too.

25 MS. ELOFSON-GARDINE: Now, Ken, were

1 you marking this?

2 MR. KORKIA: Yes.

3 MS. ELOFSON-GARDINE: Were you marking
4 this with the intention of that being the border of the
5 highway going through Leyden and 93?

6 MR. KORKIA: Uh-huh.

7 MS. ELOFSON-GARDINE: Because you
8 missed 93. So what you really want is here; right?

9 MR. KORKIA: Right. At that
10 intersection.

11 MS. ELOFSON-GARDINE: Okay. So let me
12 correct that for you. Isn't white-out wonderful?

13 Okay, so on the stuff that we sent in,
14 what we want is around Oak and 74th. And see if we can
15 identify Oak on here. We've got Alkire in here. Simms
16 goes through here. And, let's see, this looks like
17 Wadsworth coming up here. Is there agreement this is
18 Wads?

19 DR. LAVELLE: Yes, that's Wadsworth.

20 MS. ELOFSON-GARDINE: Okay, so is there
21 agreement that this is Kipling here?

22 DR. LAVELLE: Yes.

23 MS. ELOFSON-GARDINE: So we've got
24 Wads, Kipling, Simms, Alkire, Indiana, Quaker, and Oak
25 Street.

1 MS. ABBOTT: Paula, it looks like Oak
2 is about halfway between Simms and Kipling, if that helps
3 you at all. Sierra School is on Oak, Oak and about 76th.

4 MS. ELOFSON-GARDINE: Bini, do you
5 agree that this represents 80th?

6 MS. ABBOTT: Oh, boy, from there, I
7 couldn't even agree that's a map.

8 (Discussion off the record.)

9 MS. ELOFSON-GARDINE: So this must be
10 somewhere around 72nd here, so we want somewhere here.
11 And what's the other one? 72nd and Oak and Leyden and
12 the countryside. We wanted something around 110th and
13 Simms, so I'll put another X next to Lucy Pearce's X up
14 here for us, and then down here, and then over in Leyden.
15 That's the three that I had.

16 Sue had something else on hers. West
17 of Leyden Lake is a vote on this one.

18 (Discussion off the record.)

19 MS. ELOFSON-GARDINE: So she wants the
20 east side and west side, and then west of Leyden Lake.
21 Okay, we've got that marked. Anybody else's?

22 DR. LAVELLE: I think that does it.
23 We've gone through them all now, except for Gale.

24 MS. ELOFSON-GARDINE: Your turn.

25 DR. BIGGS: My turn?

1 MS. ELOFSON-GARDINE: So it seems we
2 have a lot of people wanting this basic area here. We'd
3 like to see--our contention is that there's been a lot of
4 migration with the winds and stuff further into the
5 communities and the wind direction has been primarily
6 this except for accidents. And so we're kind of looking
7 at that as, you know, angling out where some of that
8 could have migrated with winds, and then here where, you
9 know, we're aware of some clusters of illnesses and
10 leukemias, and then down here where was a lot of
11 exposures and clusters of illness. Leyden, northwest
12 Arvada, and the countryside.

13 MS. LOCKHART: Jim, did you get Bob
14 Brockmann's?

15 DR. LAVELLE: Oh, no, I guess we
16 didn't. We'll go ahead and let Gale since he's up here.
17 Go ahead.

18 DR. BIGGS: Several meetings ago I gave
19 a little presentation where I pointed out what I thought
20 was the predominant wind patterns off the plant that we
21 could sort of depend upon from the physics of the
22 facility out there. And one of the major points that I
23 made was that during the evening and nighttime hours when
24 the chinooks aren't blowing and we don't have strong
25 synoptic flow, that the air physically flows like water,

1 following the drainages in the area.

2 MR. MARSH: What is synoptic flow?

3 DR. BIGGS: Synoptic flow is the big
4 picture flow when the winds of several kilometers, like
5 highs and lows, and when those winds dominate, then those
6 are the dominant winds. If you don't have those dominant
7 winds, then your local winds take into effect, and local
8 winds, at least during the nighttime hours, follow, then,
9 the drainage patterns.

10 MR. MARSH: The terrain?

11 DR. BIGGS: The terrain. One of the
12 examples I used was the drainage out of Denver out along
13 the North Platte, and almost any day you can look out
14 along the North Platte and see the brown cloud out north
15 along the North Platte River Valley, and the drainage
16 flows out of the Denver and Boulder areas all going out
17 along the North Platte River Valley.

18 So using those same concepts, one says,
19 well, what are the drainage flows off of Rocky Flats, and
20 I hope that most of you can see this, but if you can't, I
21 think most of you are very aware of it anyway. There are
22 two major drainage flows. There's Woman's Creek and
23 Walnut Creek. Woman's Creek goes down into Standley
24 Lake, and Walnut Creek goes into Great Western Reservoir,
25 and then it goes on out and just, I believe it's on the

1 other side of U.S. 36, joins together with Big Dry Creek.

2 And so what I'm proposing, you know,
3 this area up in here seems to be fairly well sampled as
4 far as routine sampling is concerned. I have not had an
5 opportunity to look to see if any of the samples were
6 really taken down in the bottom of Walnut Creek or
7 Woman's Creek in this area, but I noticed that some of
8 them said like the inlet to Standley Lake, places like
9 that. So those kinds of places, you know, would need to
10 be sampled. But I'd like to propose sampling that goes
11 out a little further, following these drainage flows and
12 maybe all the way out to the South Platte River Valley
13 and perhaps as far as Greeley, for that matter.

14 So the kinds of places that I would be
15 looking for--and, again, I apologize, I have not had time
16 to get out in my car and drive out along all these areas
17 and pick specific sampling sites. But the kind of places
18 that I would be looking for along these creek basins
19 would be somewhere where the valley broadens out so you
20 have a nice kind of flat, broad valley and perhaps some
21 kind of an obstacle to the air flow that would create a
22 dam to the air flow.

23 MR. MARSH: How old would the obstacle
24 have to be?

25 DR. BIGGS: Probably relatively old

1 because we're looking at 20 years of--

2 MR. MARSH: So 20 years or more old?

3 DR. BIGGS: Yeah, something along those
4 lines. Or at least several years old.

5 MR. MARSH: Some permanent object.

6 DR. BIGGS: Yeah. So in other words,
7 where Big Dry Creek maybe crosses the Boulder-Denver
8 Turnpike. I know they built a new bridge out there.

9 MS. ELOFSON-GARDINE: They're doing a
10 lot of disturbance in that area right now with all that
11 construction.

12 DR. BIGGS: Yeah, I know that is. But
13 that would be the kind of place.

14 MS. ELOFSON-GARDINE: They could be
15 redistributing, you know, re-suspension and stuff that
16 might flow to the east side of the interchange.

17 DR. BIGGS: Uh-huh. Another place, at
18 least looking on the map--and I would think somewhere
19 after the confluence of Walnut and Dry Creek out in this
20 area here, and one of the places that, just looking on a
21 map, seemed like a logical place to me was somewhere just
22 north of the Community College, because it looks to me
23 like that's kind of a big, broad, open area and you've
24 got I-25 as kind of a barrier road, you know, where it's
25 been disturbed and kind of slows the air flow from out of

1 that area. Because what we're looking for is someplace
2 where the air flow down the valley is going to be slowed
3 to where it's not moving very fast. And whatever
4 contaminants are in the air would have a chance to settle
5 out onto the ground.

6 So those would be the criteria that I'd
7 be looking for in terms of selecting sites out along, you
8 know, from about U.S. 36 on out, following Big Dry Creek
9 out to where they'd hit the South Platte River Valley.
10 I also would like to look for someplace out after the
11 confluence of Big Dry Creek out in the South Platte River
12 Valley to get one sample out that far and see if we can
13 pick up anything.

14 The sampling locations should be sort
15 of as close to the water line as possible so that you're
16 getting sediment that's been there a while but has not
17 been washed away with the water itself. So you want to
18 try to get as close as you can to the water but not so
19 close that you're going to be in an area where it's been
20 washed away quite often.

21 MS. ABBOTT: But wouldn't you have
22 flooding like every five years or so?

23 DR. BIGGS: Yeah, you would, and that's
24 a problem and I don't know quite how to answer that one.
25 As a meteorologist, I've never really looked into those

1 kinds of questions before. But, you know, that's why I
2 think it would be a good idea if we got someone who's
3 familiar with stream beds and things like that to try to
4 select a good sampling site.

5 MS. ELOFSON-GARDINE: Maybe Ron Cohen
6 might be a good person to have to consult on that since
7 he works with the Monitoring Council and he's fairly
8 familiar with the Front Range lake areas since he did a
9 study on that. It seems to me that there is a large,
10 flat, bowl area to the northeast of those interchanges,
11 and I don't recall, I know we've been out here for 35
12 years and I don't recall any major floods that would have
13 disrupted that area.

14 DR. BIGGS: Someplace where flooding
15 hasn't occurred for maybe the last 10 or 15 years. There
16 are a few of those places.

17 MS. ELOFSON-GARDINE: I think that area
18 is not developed right there so it might be a good chance
19 to get some undisturbed samples.

20 DR. BIGGS: The other thing, i was out
21 at Rocky Flats a few days ago. This is a map from the
22 track model predicting the plume locations. So this is
23 not actual plume locations because we don't have a way of
24 measuring it, but it is predicted from the track model
25 given the wind fields out there. This is on 6 May of

1 '93. It was taken at 3:30 in the afternoon. So this
2 would probably go for several hours before.

3 The Rocky Flats plant is located right
4 here. The air flow was from the southeast which moved it
5 up along the Front Range. It moved north along the Front
6 Range to Boulder, which is right there, and there,
7 apparently it got caught in the drainage flows and went
8 down Boulder Creek and then turned north up the South
9 Platte River Valley. So, in essence, it was sort of
10 following the drainage--

11 MR. STOVALL: Is that as a result of an
12 accident, Gale?

13 DR. BIGGS: No, no, no, no, no.

14 MR. STOVALL: That's just all the time?

15 DR. BIGGS: The track model is a 24-
16 hour running model out there that predicts at all times
17 if there were an accident, where would it go. And it
18 updates itself every 15 minutes. And this just happens
19 to be one of the printouts of that track model.

20 MR. STOVALL: From what date?

21 DR. BIGGS: 6/3/93.

22 MR. MARSH: What was the wind speed
23 there?

24 DR. BIGGS: I don't have that on this
25 information.

1 MR. MARSH: Is that important?

2 DR. BIGGS: It probably is, yeah. This
3 is just the plume location.

4 MR. MARSH: In response to your
5 previous statements about taking the sample in the stream
6 or near the stream, since we're looking for a unique
7 substance that wouldn't otherwise be there, one possible
8 solution to the problem of getting us a sample, it may
9 represent much better reality, would be to sample
10 something that necessarily bio accumulates the anilide of
11 importance, which, to you, might be Plutonium 239. We
12 haven't talked about that yet.

13 Such a thing would have to be living
14 and it would have to be large enough to resist movement
15 from its location, wherever it is, and, of course, it
16 would have to have the quality of bio accumulating the
17 anilide of importance.

18 DR. BIGGS: If we're looking at
19 vegetation or trees or things like that, I know there
20 have been some studies done in Alamogordo area in New
21 Mexico, Alamogordo area in New Mexico, on the aging of
22 Plutonium over time, and it's my understanding that
23 Plutonium moves very slowly down through the soil. But
24 now we're looking at 50 years of migration down through
25 the soil in that area, and it's reached the wet zones of

1 some of the vegetation now and it is now, as I
2 understand, being carried back up to the surface by the
3 metabolism of the plants, and as the plants die, it's
4 being redeposited on the surface again.

5 MR. MARSH: That's very possible.

6 DR. BIGGS: In other words, the aging
7 process of Plutonium over many years is not well studied
8 but I understand there have been some studies of it.

9 MR. MARSH: Well, CSU has been doing
10 some, too.

11 DR. BIGGS: That may be helpful in
12 looking at this. I don't know. But I don't know that
13 Rocky Flats has been out there long enough to get into
14 that aging process as they're observing now down in New
15 Mexico.

16 MS. ELOFSON-GARDINE: Gale, yeah, I
17 think we brought this up about two years ago regarding
18 the use of tree ring analysis for quantitating cesium .
19 uptake in some of the brush areas, and we had asked
20 questions if that could be applied to other radioisotopes
21 of interest similar to what Greg is discussing. I'm not
22 sure if we have any of those big old oaks or something
23 like that.

24 I know that some of the studies that we
25 saw from the Khystum accident was discussed with the

1 A'Hearne Commission about two and a half years ago, and
2 what they had shared was they found certain trees were
3 more susceptible to uptake than others and that some were
4 more resistant and they had some good information on what
5 they assessed.

6 The other thing is, Kim had brought
7 this up a number of times, that he's referred to those
8 15-minute plume maps. Apparently, one of the studies he
9 was looking at, he indicated there's been at least 50,000
10 or more of those generated.

11 DR. BIGGS: I don't know that they
12 generate these every 15 minutes. This one just happened
13 to be one they thought was of interest to them.

14 MS. ELOFSON-GARDINE: One of the
15 studies that he has referred to a data base of at least
16 50,000 of those.

17 DR. BIGGS: Well, that may have been
18 the tracer study.

19 MS. ELOFSON-GARDINE: I'm not sure if
20 it's the same thing but he was talking about the every
21 15-minute maps generated to find out if there's a
22 possibility that some of those could be composited or a
23 realistic wind dispersion.

24 DR. BIGGS: Okay, I think he was asking
25 if they do it. I don't think it's been done.

1 MS. ELOFSON-GARDINE: So that's
2 something we'd be very interested in in terms of being
3 able to predict migration patterns.

4 DR. BIGGS: I think that would be an
5 excellent idea. I agree with Kim on that.

6 MS. ELOFSON-GARDINE: Yeah, and that if
7 we are going to do some sampling--thank you, Gale. I'll
8 tell Kim. He'll be happy to hear that. But that we take
9 that into consideration along with the estimated plume
10 drawing that Philip Crane did on his map and take that
11 into consideration, some of the aerial gamma surveys, and
12 those wind maps for some best-guess scenarios in addition
13 to some of those request points where people have a gut
14 feeling they'd like to see an area checked, that somehow
15 we ought to be able to correlate whatever data we can
16 with those request spots to try to come up with an
17 intelligent, reasonably scientifically-based idea of
18 where we'd like to go.

19 Now, my idea of augmenting that would
20 be to take the HPGE that is mounted on the truck to help
21 identify some correlating hot-spot areas that could be
22 tested.

23 DR. BIGGS: Let me go back to this map
24 for a moment. I guess what I would like to see, and I
25 was at a counsel meeting, I don't know, it had to be a

1 year or so ago, where a woman who told us that she used
2 to work at Rocky Flats said that the only place that they
3 found cesium in the soil was in the Rock Creek drainage
4 out near Superior. And, you know, if one looks at this
5 map, you know, the drainage flow is going out the Boulder
6 Valley and then connecting with the North Platte. So it
7 does, you know, it is connected with the topography in
8 the area.

9 So I guess I would also like to suggest
10 that we might want to look either at Rock Creek or in the
11 Boulder Creek Canyon area--not the canyon, that applies
12 to the mountains--but the creek out east of Boulder, and
13 maybe get a sample or two out in that area to see if we
14 find anything there or where it maybe connects with the
15 South Platte River Valley.

16 So those are the criteria that I'm sort
17 of looking at in order to lay out a sampling program, and
18 that's about as far as I've gotten. I apologize. I've
19 been fairly busy.

20 DR. LAVELLE: We did leave out one late
21 arriving suggestion. These were from Bob Brockmann of
22 the Boulder County Health Department. So we'll mark
23 those on the map, too.

24 Southwest of Marshall Lake in open
25 space was one of his suggestions.

1 MS. ELOFSON-GARDINE: Do you need some
2 help on that, too?

3 MR. STOVALL: Let me see if I can help
4 you with that one.

5 (Discussion off the record.)

6 DR. LAVELLE: Then I think he said near
7 Stearns Lake in Rock Creek Farm open space.

8 MS. ELOFSON-GARDINE: Over by
9 Broomfield.

10 (Discussion off the record.)

11 DR. LAVELLE: Then the third one was
12 Chautauqua Park, south facing ridge.

13 MR. STOVALL: That's in the city of
14 Boulder.

15 DR. LAVELLE: Okay. So I think we've
16 gotten all of these up here.

17 MS. ABBOTT: Did you put on Jim
18 Stone's?

19 DR. LAVELLE: Yes.

20 MS. ABBOTT: You got all those?

21 DR. LAVELLE: Yes. I think they're all
22 on there now.

23 What I thought we might want to do is
24 talk a little bit about the criteria that we would want
25 to use now to sort out the actual locations. I sort of

1 figured what we're going to have to do is, as Gale
2 alerted to, too, we're going to have to drive out to
3 these places. We have to pick the location where we're
4 going to sample, not just sort of the general thing on
5 the map. So we still have a bit of work to do, but I'm
6 kind of pleased we got to the point where we have a bunch
7 of X's up there now.

8 Now, I have a letter from Bob Brockmann
9 that I thought I'd read, and that might sort of get us
10 into talking about criteria. I'll make some suggestions
11 or, actually, just reminders of things that have been
12 brought up before, and then we can kind of just open it
13 up, I think, and talk about what we really want to do in
14 terms of choosing sampling sites. And then, finally, we
15 can talk about when we want to meet next.

16 But anyway, Bob Brockmann says--and I
17 guess we should probably end up, eventually, making
18 copies of this.

19 MS. LOCKHART: This is in the packet.

20 DR. LAVELLE: Oh, you've got it. Okay.
21 Actually, maybe I don't have to read it then.

22 MS. LOCKHART: I encouraged him to
23 write down what he wanted to say since he really wanted
24 sampling in Boulder County and his county commissioners
25 wanted sampling done in the county, too.

1 DR. SCHONBECK: Basically, his point I
2 think is not to sample where modelers tell us to go to
3 the highest concentration of predicted pollutant but,
4 rather, to sample comprehensively, assuming that we don't
5 know what we're talking about.

6 DR. LAVELLE: Yeah, as I read through
7 that, that's pretty good. Okay, so it seems to me like
8 we started off very early on talking about two very, very
9 general sorts of criteria. And I think, actually, the
10 people that sit on the committee have maybe two very
11 different sort of focuses on the sampling. For instance,
12 I kind of think--and I wish the Walnut Creek people were
13 here to answer this directly, but I sort of think that a
14 lot of their concern is, is there a problem right now
15 here in my community. Not, I don't really care if
16 somebody got exposed in the past; am I in a difficult
17 situation right now.

18 I sort of think that that's Jim
19 Fisher's kind of focus, is if we put a golf course out
20 here, if we do something else with this land, is it a
21 problem right now to those people now and into the
22 future. Obviously, there are people who are much more
23 concerned about what did happen in the past and what were
24 those kinds of exposures.

25 We might end up with different kinds of

1 samples in different sorts of locations to answer those
2 two concerns. And so I think that's one criteria that
3 the committee is going to have to grapple with in one way
4 or another.

5 Another criteria, and I know I've heard
6 it voiced a couple of times--I think Greg has been the
7 primary proponent of this--and that is that we need
8 sampling that's completely independent from DOE, sampling
9 and analysis. That is, if anyone has ever received DOE
10 money in the past, they're out. I think that's going to
11 be very difficult to do, I think, just finding somebody
12 that hasn't received DOE money because that's been the
13 primary source of funding for any of these kinds of
14 investigations. But I think we need to talk about that,
15 the committee does, and decide if we can't find someone
16 that's independent, what else can we do to ensure
17 ourselves that what we get back is reliable. So it's
18 that kind of criteria.

19 And we need to, I think--and this has
20 been brought up also--decide how do we want to go about
21 the sampling. Do we want to just take that little bit of
22 surface? Do we want to get a whole profile of Plutonium
23 in the soil to get an idea of everything that's gone on
24 in the past?

25 So do we want to do something like the

1 Rocky Flats method or the CDH method or the CSU method?
2 All of those give you somewhat different kinds of
3 information.

4 So all of those, it seems to me, have
5 to enter in and, probably, all of you have additional
6 suggestions, issues, and such that you need to bring up
7 as far as how we're actually going to decide on these
8 sites.

9 MS. ABBOTT: Do you have any idea of
10 ball park figures on, we'll say, cost of doing a profile
11 compared to cost of just doing the first two centimeters,
12 whatever? Do you have any types of ball park figures?

13 DR. LAVELLE: There's a good criteria:
14 cost. Normie is sitting over here thinking, Thank
15 goodness that came up. I don't. And I know CSU sort of
16 does things on a grander scale and they don't really
17 break it down into how much it really costs to go out and
18 do a single sample, profile sample.

19 Mike, do you have any idea of about how
20 the Rocky Flats or CSU or CDH methods go?

21 MR. GUILLAUME: Yeah. We spend about
22 \$550 a sample for the simply Plutonium, Americium,
23 uranium series. That doesn't include sample collection.
24 That's just straight analysis cost.

25 MR. MARSH: What method?

1 DR. LAVELLE: That's just the analysis?

2 MR. GUILLAUME: I'd have to look that
3 up on the procedures, to tell you the truth.

4 DR. SCHONBECK: And what elements or
5 anilides does that include?

6 MR. GUILLAUME: That's Plutonium 239,
7 240, Americium 241, and 5 isotopes of uranium.

8 DR. LAVELLE: Okay. And do you have an
9 idea of how much it costs to have a team actually go out
10 and take the sample in?

11 MR. GUILLAUME: I'm afraid I don't know
12 that right offhand.

13 DR. LAVELLE: That seems to be a tough
14 one to come up with.

15 MR. GUILLAUME: Right. Because you're
16 talking about a back hoe, a health and safety plan,
17 decontamination equipment, you know, truck.

18 DR. LAVELLE: Right. And I guess we
19 should all think about--Mike works under some fairly
20 strict requirements, health and safety plan requirements,
21 et cetera, that are part of Superfund. We don't
22 necessarily have to work under all of those, you know.
23 CSU, when they do their sampling off site, doesn't do all
24 of those same things. So we can probably get away with
25 somewhat cheaper sampling than what's required for the

1 Superfund.

2 MR. GUILLAUME: But you'll need to
3 consider, you know, how many duplicates do we need, how
4 many rinsates, what kind of validation costs are we going
5 to incur.

6 DR. LAVELLE: Absolutely. There's a
7 lot of potential costs here.

8 MR. GUILLAUME: We do a trench method
9 and we've got 11 trenches, 10 trenches in OU-3 that take
10 ten samples each. So analysis costs, 60-, 70-thousand
11 dollars for one trench.

12 DR. LAVELLE: That's great. Just what
13 we needed to hear. And these are all the CDH method
14 costs; right?

15 MR. GUILLAUME: Yes.

16 DR. LAVELLE: Those are the--is it 10
17 or 20?

18 MR. GUILLAUME: Ten acres. 25 sub-
19 samples.

20 DR. LAVELLE: 25 sub-samples, right,
21 that are all composited.

22 MR. GUILLAUME: We also do the RFP
23 method.

24 DR. LAVELLE: And you do the Rocky
25 Flats method as well. Okay.

1 And then I guess, actually--I just
2 thought of it--the one other criteria that we need to
3 think about a little bit, I think, as you can see,
4 there's lots of samples that have already been taken out
5 there, different methods, and this doesn't nearly cover
6 all of them. These are just the most recent ones that
7 EG&G has taken in OU-3. This doesn't include all the
8 samples that CSU has taken using their methods that
9 covers, basically, the same sort of area in a lot of
10 different locations.

11 And, Rob, I think, is sitting over
12 here, has a lot of additional data that's been collected
13 around and, of course, we have a lot of historic data.
14 How are we going to use our sampling in light of all this
15 additional information? That is, do we want to sample
16 some locations to see if what we get agrees with what
17 other people have already gotten? Do we want to use the
18 sampling to fill in holes, places that haven't been
19 samples and that we think might have missed things?

20 That's another possible criteria, is
21 how are we going to think about this kind of sampling and
22 use the sampling in this committee as a check or
23 whatever.

24 DR. SCHONBECK: How we ask this
25 question has a larger impact on the answer we're going to

1 get, I think, than most of us realize. It just came to
2 me now. What is it that we really want to know? I mean,
3 I think if I had to pick the most important answer that
4 I'd like to have is how bad is it; and that doesn't
5 necessarily include a perfectly scientific survey in
6 order to get the answer. And the cost, of course, is
7 going to come into this. I mean, we cannot do a
8 comprehensive scientific study with the money that we
9 have.

10 So perhaps, you know, bottom line is,
11 have we missed some major contamination? Is that a
12 question that we can answer with this sampling scheme?

13 MR. MARSH: Well, to answer that, you
14 know, we may not know that until after the results are
15 in. For example, let's say we get a couple of hot spots
16 out there and they're the tip of the iceberg. Much the
17 same that Jim Stone, the engineer, has been talking about
18 the clay lands on the 881 hillside, which is believed to
19 be a burial ground for the '57 fire refuse.

20 So, you know, if one of our samples
21 pulls up a hot spot, that's certainly going to raise some
22 eyebrows.

23 DR. SCHONBECK: Well, that would be the
24 easy result.

25 MR. MARSH: That's right.

1 DR. SCHONBECK: The question is, what
2 happens if we don't have a hot spot in this? Have we
3 answered the question adequately?

4 MS. ELOFSON-GARDINE: It could be five
5 feet in any direction from where you sample, for all you
6 know.

7 MR. MARSH: You're too late with that
8 question.

9 DR. LAVELLE: That's what we have to
10 think about. That's why, I think, it would be critical
11 for us to look at what other sampling has been done out
12 there and decide, you know, once we put all the sampling
13 together, how big a hot spot could we have missed?

14 MS. ELOFSON-GARDINE: Yeah, one thing
15 that I wanted to bring up was I know the background
16 geochemical characterization. They did look at that
17 northwest quadrant of the plant. They did look at the
18 Rock Creek area. I'm wondering if it would be prudent to
19 do some kind of a lit. search for which studies overlap
20 and may have done some kind of sampling in those areas to
21 help augment or eliminate areas that may be superfluous
22 in regard to that information.

23 Also, you know, not to be repeating too
24 much, but there's been a lot of money saved from sampling
25 being identified as not necessary in an area through

1 looking at what's already done, the aerial gamma surveys.
2 I'm looking at the Institute HPGE mobile unit to go over
3 and maybe eliminate some--you know, if we could get
4 cooperation from the plant to have that unit go out to
5 some of those areas and see what kind of special analysis
6 they come up with as a best guess to see if sampling is
7 warranted in some of those spots.

8 DR. LAVELLE: That's certainly a
9 possibility.

10 MS. ELOFSON-GARDINE: That would save a
11 lot of money.

12 DR. LAVELLE: Obviously, that's a lot
13 cheaper than actually going through the soil collection.

14 MS. ELOFSON-GARDINE: I mean, they
15 obviously don't get everything with that but they
16 certainly get a good best guess.

17 DR. LAVELLE: Right. Okay. Bini?

18 MS. ABBOTT: Talking about scientific
19 gaps, I think that would be possible if members of the
20 HAP wanted some testing. But in this case, what we're
21 asking is for citizens and not to necessarily fill in the
22 gaps, just where they might think that something could be
23 found. So I agree with Niels, that we're not trying to
24 do a super scientific study. This is, for once, to give
25 the citizens some money, you know, to test where they

1 hope to test.

2 DR. LAVELLE: Yeah, I agree.

3 MS. ELOFSON-GARDINE: But you don't
4 want to throw it away either.

5 DR. LAVELLE: It is a tough one. For
6 instance, the samples that Gale has suggested, we won't
7 be able to take enough of those, perhaps, for a
8 statistician to be satisfied, but it's clearly a hole,
9 where nobody has taken samples before and we can
10 hopefully locate some decent locations and at least give
11 ourselves a feeling as to whether or not we're really
12 missing something out in that area.

13 So it's kind of--I mean, if you use
14 some logic and maybe some science to think about locating
15 things, perhaps--I think perhaps some people are just
16 going to say, I want to test it over there because I live
17 close to there, and that's fine, too.

18 But in the end, you're right, there's
19 not enough money there to do a comprehensive sampling
20 like has been done and is being done in areas close to
21 the plant.

22 DR. BIGGS: They recently found some
23 hot spots on 881 and, presumably, this had been soil
24 sampled before. And the way those were found was that
25 they went out and did a surface survey and found them,

1 and then--what's the word?--mitigated them. However
2 comfortable one feels with that word.

3 But I'm just wondering if maybe if
4 going out into the field to--you know, some of the
5 criteria I've laid out doesn't really tie it down to a
6 spot very well and maybe we can walk the area with some
7 kind of a surface fiddler or something that says--you
8 know, and increase the probability, then, of our finding
9 anything in the soil sample. If we don't see anything on
10 the fiddler, then we take a random sample. If the
11 fiddler shows any kind of a variation and that's the
12 highest in the area, then we use that to guide us in the
13 selection of the soil sample.

14 DR. LAVELLE: I think that's a pretty
15 good suggestion.

16 MS. ELOFSON-GARDINE: It's time
17 consuming, no matter what you're going to do.

18 DR. BIGGS: Well, yeah, but, you know,
19 if the cost of the sample is that expensive, then it may
20 be worth putting a little more effort into the selection.
21 Because we're not trying to do a random sample here;
22 we're trying to do a very focused random sampling.

23 DR. LAVELLE: That's right.

24 DR. BIGGS: That's a different attitude
25 and approach than trying to come up with random samples

1 on a map irrespective of where you think it may go or not
2 go.

3 MS. ELOFSON-GARDINE: It would be nice
4 if our best guesses are pretty good, educated guesses.

5 MR. GUILLAUME: That will certainly
6 save some money because you don't find anything in OU-3
7 that will be detected on a fiddler because the detection
8 limit of the fiddler is not sufficiently low enough to
9 even see the highest value that's ever been found in
10 OU-3.

11 DR. BIGGS: Is there another instrument
12 that may give us some better guidance?

13 MR. GUILLAUME: The HPGE does go down
14 to a much lower--

15 DR. BIGGS: Is that something you can
16 walk around with?

17 MR. GUILLAUME: No.

18 MS. ELOFSON-GARDINE: They have to have
19 the truck go out, but it goes, from what I know, down to
20 a tenth of a Picocurie.

21 MR. GUILLAUME: Depends on soil
22 conditions, and there are a lot of variables.

23 MS. ELOFSON-GARDINE: Attenuation by
24 moisture.

25 MR. GUILLAUME: Right. That you need

1 to take into consideration. But the one that--Ron
2 Running is running this--it's definitely a state of the
3 art as far as real time numbers.

4 MR. KORKIA: This will be the fourth
5 motion, I guess, on this, people talking about this, but
6 we had a presentation yesterday of the technical review
7 group, and EG&G is coming out with this high purity
8 germanium detector and so we got to see that, and they
9 can set that up for a one-hour time period and get down
10 to the state construction standard. That's what they're
11 looking for to do. And the cost compares but I don't
12 remember the numbers offhand. I have them written down.

13 MS. ELOFSON-GARDINE: Far cheaper.

14 MR. KORKIA: It's strikingly cheaper to
15 do it that way. And for my purposes, to look at areas
16 that I would like to see sampled, that would solve my
17 criteria, to be able to just go out and use this device
18 and to take the samples that way and to give an idea of
19 if anything is there. And the wind site where they have
20 that facility, where they're doing their work right now,
21 they probably have samples that they've already taken
22 that would kill one of my birds with that stone having
23 already been cast.

24 DR. LAVELLE: That's interesting. I
25 have no idea about the availability of this instrument.

1 MR. STOVALL: That was my question.

2 MR. KORKIA: They have it budgeted for
3 next year so maybe we can--

4 MS. ELOFSON-GARDINE: I think right now
5 one of their complaints is that it's under-utilized.

6 MS. ABBOTT: But that would only detect
7 down to--

8 MR. GUILLAUME: It's being heavily used
9 in the OU-2 to do just what you're talking about, to key
10 in on locations.

11 MS. ELOFSON-GARDINE: But broadening
12 its application to other areas?

13 MR. GUILLAUME: No. Because it's
14 written into a variety of work packages right now that
15 say we need, we are going to use it.

16 MR. STONE: I've seen it on a daily
17 basis on site for the last two months, probably.

18 MS. ELOFSON-GARDINE: Yeah, he
19 discussed going through OU-7 and OU-2 quite a bit.

20 MR. GUILLAUME: He just finished 5 and
21 6. So it's heavily used right at the moment. If your
22 cutoff is also .9 Picocuries per gram for the area that
23 you're looking at, you're not going to see .9. I mean,
24 the settlement agreement went through ten years of
25 litigation and hundreds of samples trying to identify

1 where .9 isopleth in off-site Rocky Flats. And there's
2 only four locations or four samples in a "V" coming away
3 from the 903 pad, you know, immediately to the east that
4 show on the buffer zone higher than .9. So if you look
5 in any other direction from Rocky Flats, even in the
6 buffer zone, you don't see .9.

7 DR. BIGGS: Let me ask another
8 question. Sampling for beryllium. I mean, that's
9 another metal that would settle out in the same way that
10 I've been talking in terms of location of my sampling.
11 Is that a cheaper thing to sample for? And how does
12 beryllium act in the soil? Is it pretty soluble? Does
13 it move?

14 DR. LAVELLE: No, it's not very
15 soluble. It's pretty immobile in the soil. I don't
16 think sampling for it would be really much different.

17 DR. BIGGS: The cost is what you're
18 saying.

19 DR. LAVELLE: The analytical cost would
20 be quite a bit less. It's easier to analyze for
21 beryllium than it is for levels of--

22 DR. BIGGS: That might be thought of as
23 a tracer. In other words, you know, if we don't detect
24 anything, you know, from the instruments they're talking
25 about, then we may want to just say, well, okay, let's

1 just take a beryllium sample at this location and see if
2 we find anything and use that as the tracer. Now I kind
3 of have to ask the question, how unique is beryllium to
4 Rocky Flats? As I understand, aren't there some
5 beryllium in Denver as well that we may be getting into
6 in the South Platte River Valley?

7 DR. LAVELLE: Well, yeah, I think
8 there's at least one other industry out near Rocky Flats
9 that uses beryllium.

10 MR. STOVALL: Isn't beryllium a much
11 lighter material than Plutonium?

12 MR. MARSH: Oh, yeah, much, much
13 lighter.

14 MR. STOVALL: So if you look for
15 beryllium, I don't think you could correlate what other
16 materials you might find if you just check for beryllium.

17 DR. BIGGS: Okay. So it may not be a
18 very good tracer, then.

19 MR. MARSH: Well, not entirely. If my
20 memory serves me right, beryllium has two stable
21 isotopes. Is that right, Niels?

22 DR. SCHONBECK: I don't recall.

23 MR. MARSH: 6 and 7. And the
24 proportion of those, given that Rocky Flats has always
25 built everything with infinite funding, they could

1 specify the isotope in what they were machining and it
2 would be different than anyone's. So you could do
3 beryllium analysis by isotopic identification, sort of
4 like an internal standard, if it is.

5 MS. ELOFSON-GARDINE: That should be in
6 the quarterly report that they have on materials used at
7 the plant.

8 MR. MARSH: Well, they just talk about
9 beryllium. They don't talk about isotopic analysis.

10 MS. ELOFSON-GARDINE: It may be on that
11 list because they put that list out quarterly--

12 MR. MARSH: Right. But do they talk
13 about different isotopes of beryllium? And they probably
14 don't.

15 MS. ELOFSON-GARDINE: They talk about
16 other materials. I haven't specifically looked for
17 beryllium but they may. We won't know without looking.

18 DR. LAVELLE: Of course, those kinds of
19 analyses would be much expensive than total beryllium,
20 when you have to do a mass. But it's certainly an idea.

21 DR. SCHONBECK: Jim, it seems that in
22 the last 15 minutes we've come up with a completely
23 different approach, and that I would suggest that we look
24 at it seriously to figure out what is the best way of
25 doing a broad survey cheaply so that we can enhance the

1 chance of getting something. I don't know, personally,
2 the difference between these instruments that we've been
3 talking about, whether aerial gamma surveys would be the
4 way to start. How much would that cost and what kinds of
5 concentrations would we expect to see. That seems to be,
6 really, the way to go before we select specific sites for
7 soil sampling, given the cost.

8 Now, who should we talk to about this,
9 or is everybody that we need in the room here now today?

10 MR. STONE: One thing is, you can't see
11 Plutonium with a gamma detector.

12 MS. ELOFSON-GARDINE: Why?

13 DR. SCHONBECK: Well, you're presuming
14 that it's the Americium.

15 MR. STONE: Then you have to assume
16 whatever, a 1 to 6 ratio or whatever.

17 DR. SCHONBECK: And, of course, it's a
18 historical study that we're doing, and we're not
19 concerned about the stuff that's coming out today, which
20 you wouldn't expect to see Americium, and that the
21 greatest kind of pollutants you'd expect from the '50s
22 and '60s and so you'd have an equilibrium of Americium.

23 MR. STONE: One problem with Americium
24 is that it's a very low energy gamma ray. It's down in
25 the lower end of the spectrum where there's a high hump

1 in the background. So you end up, like we've discussed
2 before, getting into the 2 DPM or higher range and,
3 realistically, probably higher than that as far as the
4 Plutonium concentration before you can see any type of an
5 Americium peak, and to really see a good one, I think
6 it's going to be even higher than that. In other words,
7 on site is the only really good place that you can see an
8 Americium peak that can be associated with gamma
9 counting.

10 DR. SCHONBECK: If you were doing this
11 study with your money and you were looking for hot spots,
12 is there another method that you would use as far as just
13 cost and increasing the chances of finding a missed hot
14 spot?

15 MR. STONE: Yeah, that's a tough one,
16 outside of just sampling an entire grid kind of thing.
17 That's part of what our study is trying to do, at least.
18 It doesn't--we're not trying to zero in on every hot spot
19 that might be out there. But we are, at least, doing
20 transects and down in that direction from the 903, the
21 most likely place, places, that you could find some.
22 That's a tough one.

23 What Rob's doing is probably as good as
24 anything. Instead of compositing it, though, possibly
25 analyzing individual ones by just taking the top 3

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1 millimeters to a quarter inch of soil. Here again, it's
2 a tough one. Finding the natural--finding the areas that
3 are undisturbed is the toughest part because there's not
4 very many of those left anymore.

5 DR. LAVELLE: I guess one question that
6 might be worth asking ourselves is, what are--how are we
7 going to define a hot spot. You know, if we defined it
8 as a detection limit of whatever instrument we can gain
9 access to, then perhaps that kind of a gamma survey is
10 worthwhile, if we're comfortable with that, whatever the
11 detection limit of that machine is.

12 If we're not comfortable with that,
13 then I suppose we're back to Square 1 and we're back to
14 just picking locations based on whatever judgment we have
15 about where there might be increased concentrations.

16 DR. BIGGS: I'm missing what you're
17 saying here. I guess what I'm seeing is that if a
18 survey, like a gamma survey or some other kind of survey
19 we can come up with, is not, in my mind, the place that
20 we stop. We use that as guidance to then say, okay,
21 here's where we put our money to do the nitty-gritty
22 stuff. And I guess what you were saying was that, well,
23 if that doesn't show us anything, then we are back to
24 Square 1. But I guess I'm skeptical that if it's not--or
25 if it's done carefully that we will get some guidance out

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1 of it.

2 DR. LAVELLE: And I guess my point was
3 that we should look at whatever the detection limit is
4 fairly carefully.

5 DR. BIGGS: Yes.

6 DR. LAVELLE: And if we think with that
7 detection limit it's worthwhile, then, okay, we can
8 proceed. If we're really not very comfortable with that
9 detection limit, then maybe the survey isn't the way to
10 go initially and we should just go straight to trying to
11 pick our sampling locations.

12 MS. ABBOTT: Well, on some such as
13 Leyden, I mean, northwest of the plant, Gale's idea of
14 going down the South Platte drainage, I mean, you're
15 seeing about five kind of clusterings that maybe we
16 should go, you know, cut right to the chase and go ahead
17 and actually test those, not worrying about fly-overs or
18 whatever.

19 DR. LAVELLE: That's certainly a
20 possibility.

21 MR. STONE: One suggestion I would
22 make, if the land has been disturbed, that makes the
23 biggest difference in the world, particularly in the very
24 top layer. What we're finding is that we also take a 21
25 centimeter core. That takes care of 99.9 percent of any

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1 Plutonium that has been deposited there because it just
2 doesn't move down any further than that. It's so low
3 concentrations below that that, you know, it's
4 negligible.

5 What that gives you is a total
6 inventory value. It's much lower than what we'd find
7 right at the surface. But then it doesn't seem to be
8 affected by disturbance. Even the tilled--even the lands
9 that were tilled five years ago and things like that,
10 where the profile is all turned up, you still get about
11 the same value as you do from an undisturbed area. That,
12 in itself, at least helps eliminate when you're choosing
13 an area, if it has been disturbed, you know it doesn't
14 look like it has been. That's one way to go about
15 determining if it's a little higher than unusual, if it
16 is much higher than the full profile somewhere else.

17 That might be the first sample to take,
18 as far as looking for hot spots, that would, like I said,
19 not be so dependent on whether the land has been
20 disturbed or not. Because I get amazed sometimes at
21 locations when it sure looks natural.

22 We use cesium as an indicator of
23 whether the land has been disturbed or not with our gamma
24 counter, because cesium is indicative of the atmospheric
25 fallout from the testing in the '60s, '50s and '60s. And

1 although it's not absolute, at least if the land has been
2 buried or has been scraped off and hauled away, the
3 surface portion, then the cesium count would be extremely
4 low compared to what we find out in the prairies and
5 stuff that we know haven't been disturbed.

6 DR. MEYER: So you'd recommend--sounds
7 like that would be a good thing to do across the board
8 here, at least to make certain that these samples re
9 taking in undisturbed locations?

10 MR. STONE: Right.

11 DR. MEYER: That might be pretty
12 important.

13 DR. LAVELLE: Or even in hot spots.

14 MR. STONE: The cesium--see, Rocky
15 Flats doesn't--unless there was a criticality on site,
16 there wouldn't be an increase in cesium due to Rocky
17 Flats. So that is a blanket that--it's essentially
18 worldwide. Now, they are finding that places where snow
19 tends to drift, you'll find a little bit higher cesium
20 just because, as it pulls it out of the atmosphere, it's
21 still piled up there. They found some places in the
22 mountains where snow slides come down into a valley and
23 that valley is real high in cesium.

24 But it's an indicator that helps with
25 the undisturbed. And then the full profile soil sample

1 is, more or less, irrespective of whether it's been
2 disturbed or not. You've still got an idea of how much
3 accumulated in that spot over a period of time.

4 DR. MEYER: To do the fallout cesium
5 check, what are you using and how long a count?

6 MR. STONE: We're counting for 100
7 minutes.

8 DR. MEYER: With what gamma?

9 MR. STONE: With the HPGE, tripod
10 mounted field detector that's about 50 percent efficient.
11 So it's one of the top of the line operations.

12 MR. MARSH: Is that a sodium iodide
13 crystal?

14 MR. STONE: No. It's HPGE.

15 MR. MARSH: I have a question for Rob
16 Terry. About three years ago in one of the monthly
17 meetings you mentioned that they had found some fission
18 products around the plant but they weren't from the plant
19 because they weren't--which isotope were you talking
20 about then?

21 MR. TERRY: We were looking for cesium
22 137, and what we have found is that a number of errors
23 were made at the bench level in taking those
24 measurements.

25 MR. MARSH: So these were attributed to

1 laboratory error?

2 MR. TERRY: Yeah. We have just
3 acquired a new detector that is extremely sensitive, and
4 once we have that integrated into the system, what we're
5 going to do is go back and reanalyze both the 1989 and
6 the 1991 samples for a whole bunch of fission products,
7 including cesium 137, and this time we're going to avoid
8 the mistakes that were identified.

9 The mistakes center on the fact that
10 the volume of each sample was variable as it was placed
11 on the detector. Radiation follows the inverse square
12 log. Let's say you're one foot away from a candle. The
13 light intensity at that distance is X. If you're two
14 feet away from the candle, the light intensity at that
15 distance is one-fourth of X. Therefore, as you can
16 imagine, if the size of the sample as it sits on top of
17 the detector is quite variable, it's going to have a
18 tremendous impact on the quantitative results that you
19 turn out.

20 Now, the fellow who did those
21 measurements was aware of that fact when he did them.
22 What he failed to do was translate that into an
23 operational procedure to allow for it.

24 So the old detector we have, I think,
25 was good enough to do the job. However, the new detector

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1 that we have is going to give us so much greater
2 sensitivity and, along with that, so much greater
3 precision in the measurement that I think it's
4 constructive to just hold off until we have that new
5 detector integrated in the system to go ahead. I hope
6 that you will see the results by the end of the year.

7 Now, what implications does that have
8 for the survey findings that we reported in the past?
9 The implication is this: As we showed you, plotted on a
10 map, what our measurements were, it looked like there
11 were blotches on the map where the cesium concentration
12 appeared to be higher. Was that due to the fact that
13 there was more cesium in those locations, or was it due
14 to the fact that we had measurements that made them
15 erroneously higher? I don't know the answer to that
16 question, but none of us is going to know the answer to
17 that question until we go back and analyze the samples
18 properly.

19 And I'd like to take this opportunity
20 to apologize to all of you for putting misinformation
21 into the world. Unfortunately, I have, and it's still
22 going to be several months before I can mitigate some of
23 that damage.

24 MS. ABBOTT: Do you have those samples
25 archived, then, so that you can--

1 MR. TERRY: Yes, we still have the
2 samples in the shop.

3 MR. STONE: One thing that I'm sure
4 that Rob is also familiar with is the geometry of the
5 sample is extremely important.

6 MR. TERRY: That was the issue that led
7 to the problem with our results.

8 MR. STONE: Not only the distance from
9 the detector, but if you are using this container to set
10 on top of your detector, if some of the samples are only
11 one-fourth full and some half and some three-quarters
12 full, then that's a different geometry than having them
13 all exactly the same volume and the same weight, and it
14 will effect--plus the sample at the top is being shielded
15 by the sample down here, as well, in some cases, you
16 know, depending on the sample.

17 MR. TERRY: There are two things we're
18 going to do when we reanalyze them. One is to make the
19 shape and volume of the samples more uniform. However,
20 in all cases in order to get as much sensitivity as we
21 can, we want to use as much sample as we reasonably can.
22 So we will calibrate to several sample volumes of shapes
23 and then match the samples to those calibrations. To the
24 extent that it's reasonable, we will make the shapes more
25 uniform, but we don't want to compromise the sensitivity

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1 in the precision of the measurements just for the sake of
2 uniformity.

3 DR. MEYER: You've probably homogenized
4 the samples as well?

5 MR. TERRY: The samples are ground.
6 They're not milled. I mean, they're broken up. And then
7 they are mixed thoroughly before we split them. They are
8 not--as I said, they're not milled, so there could be a
9 random variation in the content of the samples from one-
10 quarter of the samples to the next.

11 MS. ELOFSON-GARDINE: So do you feel
12 that the samples have a certain proportion of
13 heterogenous mix? How homogenous are the samples if
14 they're not milling the samples?

15 MR. TERRY: If the samples were not
16 adequately homogenous to get valid results, I would not
17 be tempted to pass them off as valid results.

18 DR. LAVELLE: Well, we should probably
19 be thinking a little bit about how we're going to proceed
20 now, I think. I wonder if it would be worthwhile on
21 maybe one of the little tear sheets up here list some of
22 our ideas of how best to proceed so that we can look at
23 those, decide if we need to bring somebody in for our
24 next meeting, and perhaps get an idea of--a little more
25 focused idea of where we're going. I think we've brought

1 up a lot of good stuff here. Maybe it's time to sort it
2 out and organize it a little bit. Does that sound
3 reasonable to everyone? Okay.

4 Let me take the photo down here and we
5 can write some stuff up as we go along. I think one of
6 the points that Niels brought out earlier is an important
7 one, and that is, perhaps we should define our objective
8 or objectives, more than one, a little more clearly and
9 then we can relate our criteria back to those objectives
10 as we go along. So if anyone has objectives, maybe now
11 is the time we can bring them out and write them down and
12 really start looking at this.

13 MS. ABBOTT: I think the primary one is
14 to give the citizens--allow them to choose sampling sites
15 to answer their own questions. That's probably not the
16 best wording, but that's why I think they were all asked
17 for their ideas.

18 MS. ELOFSON-GARDINE: I think Bob
19 Brockmann's letter makes a lot of sense, and I think it
20 pretty well parallels the discussion we've just had.

21 DR. LAVELLE: Can you state that in the
22 form of an objective?

23 MS. ELOFSON-GARDINE: That, basically,
24 we're looking for--we're all recognizing difficulties
25 with a best-guess scenario, and what we're trying to

1 explore is quality check, information to help us towards
2 that best guess, using the aerial gamma survey, using
3 wind flow patterns, looking at the likelihood of
4 deposition from different accidents with those wind flow
5 patterns at that time that were individual events
6 combined with general wind patterns. I guess that's more
7 than 25 words, isn't it, Jim?

8 DR. LAVELLE: Slightly more. let me
9 see if I can put that into the form of an objective, and
10 then you can alter that.

11 MS. ELOFSON-GARDINE: To head towards
12 the best guess using all tools available.

13 DR. LAVELLE: Okay, that seems broad
14 enough that maybe we might want to whittle it down a
15 little bit or make it into more than one objective.

16 MS. ELOFSON-GARDINE: Go back to the
17 150 words?

18 DR. LAVELLE: What I was thinking is, I
19 think there's a note in all of this of--

20 MS. ELOFSON-GARDINE: Look for
21 commonalities with everyone's current sampling ideas
22 first?

23 DR. SCHONBECK: That's a strategy, not
24 an objective.

25 DR. LAVELLE: I guess I'm having a hard

1 time sorting the two out.

2 MS. ELOFSON-GARDINE: To screen, try to
3 screen, those desired sampling spots with--

4 DR. SCHONBECK: Again, you're second
5 level. I think we're just talking about what is it that
6 we want to accomplish?

7 MS. ELOFSON-GARDINE: We want to try to
8 identify hot spots.

9 MR. KORKIA: I'm going to paraphrase
10 what Bob was maybe saying. Because one of my original
11 intentions was that we confirm or deny release estimates,
12 and so that would be the '57 fire, the '69 fire, and the
13 incidents that Bob is talking about in his letter,
14 because we have this information coming out of the
15 ChemRisk report and want to be able to confirm or deny
16 those release incidents by doing the soil sampling.

17 DR. BIGGS: I'm not to the point where
18 I can verbalize an objective down to a few words, but let
19 me start off talking and maybe I'll get there.

20 DR. LAVELLE: Okay.

21 DR. BIGGS: Staying with the letter,
22 the Brockmann letter, as a modeler it hurts me to say
23 this, but he's absolutely right. The winds at Rocky
24 Flats are so different, fickle, whatever words you want
25 to use--squirrely maybe is a good word--that I am just

1 not convinced that the kinds of air quality models we
2 have today really work out there.

3 And so what I've attempted to so is
4 say, okay, let's back away from models, because I don't
5 think I believe in the models out there either, and see
6 if there is some way that I can logically come up with
7 not episodic releases, which is what he's kind of talking
8 about, but routine releases. Where would these be
9 accumulated over the years and where would be the most
10 logical spot, in my mind, to go look for them. And
11 that's what I've tried to do here is say, let's follow
12 the thought process of where would I see a long-term
13 accumulation of routine releases from that facility and
14 would those be large enough to then detect.

15 And so while your first objective is to
16 allow citizens to use their samplings, that doesn't
17 really have logic in it to me; that has emotion in it.
18 Okay? So my second objective is I want to try to say
19 something about a logical approach to this, you know,
20 based on things that, logically, we don't think that we
21 believe have been tried.

22 MS. ELOFSON-GARDINE: So we want to
23 find logical deposition, possible deposition, spots.

24 DR. BIGGS: So, you know, that's why
25 I've kind of honed in on these drainage flows. I know

1 the drainage flows are very dominant in this area. So,
2 you know, from a meterological point of view, looking at
3 a very squirrely situation, you try to say, okay, can we
4 pick out one thing out of that that we think may be more
5 consistent than, you know, the noise we see, basically.
6 And the only thing I've been able to come up with so far
7 have been these drainage flow concepts.

8 So my objective would be to attempt to
9 throw some bit of logic into this rather than just allow
10 citizens to say, I'm worried about my backyard.

11 DR. LAVELLE: You're hitting exactly on
12 what I'm trying to formulate into an objective up here,
13 and I think it had a lot to do with what Paula was
14 saying. I think we're getting closer here.

15 Niels, do you have a suggestion or
16 addition?

17 DR. SCHONBECK: Well, listening to
18 Gale, I think you're beginning with what you think is a
19 process and then finding out what objective is reachable
20 by that. I think we ought to just say, is there, just
21 flat out, an objective that--you know, one objective I
22 have is, is Rocky Flats contamination above background?
23 In other words, a straightforward, simple question.

24 DR. LAVELLE: You want to put it a
25 spatial--

1 DR. SCHONBECK: Anywhere.

2 DR. LAVELLE: Well, yes. We know the
3 answer yes. If we go inside the buffer zone, it's yes.

4 DR. SCHONBECK: All right. Off site.

5 MR. MARSH: Yeah, off site.

6 MS. ELOFSON-GARDINE: Can we find
7 evidence off site of both background contamination for
8 Rocky Flats in areas of concern?

9 MR. GUILLAUME: Do you need samples to
10 answer that?

11 MS. ELOFSON-GARDINE: Maybe, maybe not.
12 We don't know that yet. It could be in Kansas or
13 Oklahoma or New York by now, as far as we know.

14 DR. SCHONBECK: Of course, there's some
15 sub-questions. How high above background? Does this
16 value confirm or deny ChemRisk's report?

17 MS. ELOFSON-GARDINE: Can ChemRisk's
18 report be validated by this process? Maybe that's
19 another thing we're asking.

20 DR. LAVELLE: Another one? I think
21 probably, realistically thinking about the amount of
22 sampling we would do, we would be trying to determine
23 whether what we found was consistent with ChemRisk and
24 that we would have to use a much broader spectrum of data
25 to actually validate it.

1 MS. ELOFSON-GARDINE: Well, I have
2 another question that I'm not sure if I've got it
3 formulated quite yet, which is a best guess of accidental
4 and routine releases over 40 years from Rocky Flats.
5 What quantity are we looking at, for example, with TRI's?
6 X tons of carbon tet go out a year from X industrial
7 sources. What are we talking? What kind of quantity are
8 we perhaps trying to assume or to best guess where it
9 could have been deposited and how much could have just
10 been dispersed and gone with the wind.

11 And so what we're looking at also, is
12 there a way to quantify the 40 years of release from the
13 plant and to try to determine through our best-guess
14 scenario where it has migrated to. I mean, we've all
15 kind of got the same concept here. If you look at that
16 map, it looks like everybody's gone out in maybe five- or
17 ten-mile increments in a concentric circle around the
18 plant almost, saying, is it here; I don't know, is it
19 over here; well, I kind of want to look over here.

20 If I remember rightly, Ed Martell, when
21 him and Paul did their survey--I think it was in 1979, if
22 I remember rightly on that report--was that--

23 DR. SCHONBECK: The report was '70.
24 They did the sampling in '69 and '70.

25 MS. ELOFSON-GARDINE: Yeah, they did it

1 after the '69 fire. I'm thinking of another thing they
2 did as a follow up. But they did a 50-mile circumference
3 and they found what they felt were Plutonium deposit
4 samples all the way up near Fort Collins and Greeley.
5 So, you know, the question in our minds is how much is
6 still around here, how much has migrated out like over
7 the holding pond from the plant.

8 DR. LAVELLE: It seems like that sort
9 of gets to the same issue, that is, you know, the study,
10 whether it's ChemRisk or--

11 MS. ELOFSON-GARDINE: What we're
12 looking at is a mass balance on one hand versus where
13 could it have been distributed to environmentally.

14 DR. LAVELLE: Yeah, I agree. And I
15 wonder if we're getting to--could we summarize all of
16 that up in an objective or a question here: Is our
17 sampling consistent with the source term approaches to
18 get at the same answers? Something similar to that.
19 Niels?

20 DR. SCHONBECK: Just recalling why
21 we're here, you know, I can imagine a couple people
22 thinking this has all been done over and over again, and
23 so, really, our second objective was not only for the
24 citizens but to give an independent assessment of the
25 best science, I mean, because, you know, what we're

1 talking about has been talked about for years in various
2 meetings like this, I'm sure.

3 DR. LAVELLE: How's that? Is that
4 right?

5 DR. SCHONBECK: Yes.

6 DR. LAVELLE: Independent assessment of
7 Rocky Flats studies.

8 DR. SCHONBECK: And the reason that we
9 do that is because we got so frustrated with the
10 intangible data or non-existent, or so difficult a time
11 with source terms, that we said we've got to go, in order
12 to do this study, within the confines of what we're about
13 to do, is to go to the soil and see what's there. So I'm
14 just reminding myself why, where this all came from.

15 DR. LAVELLE: No, I think that's good
16 because it clears up--that was, clearly, an objective
17 that we talked about very early on, is, you know, do we
18 believe everything that's coming out of the study, do we
19 believe all the sampling that's been done in the past,
20 and do we think that all of the right locations have been
21 sampled. Should we go out there and do something to
22 independently confirm or not all of the stuff that we're
23 being told from these other sources.

24 MS. ELOFSON-GARDINE: So the fourth
25 objective might be to identify reasonable, logical

1 locations that could quality check the above.

2 DR. LAVELLE: That's true.

3 MS. ELOFSON-GARDINE: To identify
4 logical, reasonable sampling locations that could act as
5 quality checks of the above.

6 DR. SCHONBECK: Also, Jim, I'd like to
7 ask the people who are not on the Health Advisory Panel
8 who are here today, just as a reality check, like Rob
9 Terry and Mike and Jim, you know, is what we're doing,
10 does it make sense, given what you guys are involved in?
11 Help us try to focus this in a way. What we could
12 contribute to the existing science out there?

13 And the only thing that I think we have
14 to add to this process is the fact that we have some
15 shades of independence. I mean, it's not perfect, but
16 we're supposed to be an oversight committee drawn from
17 the community. So given that political reality, what can
18 we add to the science here? I mean, because it isn't
19 just science we're talking about. It's mostly
20 perception.

21 MR. TERRY: From my standpoint, I
22 personally believe that the State Health Department's
23 survey very adequately satisfied Objective No. 2 back in
24 1970. Keep in mind, from 1969 when we first began
25 actively being involved in monitoring Rocky Flats Plant

1 and when we began our survey, from 1969 until 1979, the
2 State Health Department was not receiving any money
3 whatsoever from the Department of Energy. For that ten-
4 year period our surveys were conducted by the people of
5 Colorado for the people of Colorado at the expense of the
6 people of Colorado entirely.

7 I would like to think that even if we
8 think we're not reliable since we began taking money from
9 the Federal Government, that perhaps we were before that
10 time. So since most of what we know about the State
11 Health Department really was learned in the first couple
12 of years of the survey and everything we've done since
13 then has been refining our surveys and continuing to
14 expand the data base, in my opinion, there really
15 shouldn't be any question about the credibility or the
16 reliability of our results.

17 However, in order to have a real
18 appreciation for what the information is telling you,
19 what the information isn't telling you, what the limits
20 are on what you can do with a sample and the measurements
21 you take from that sample and draw conclusions from it, I
22 think that the best way to gain a good understanding of
23 that is to spend some time out in the field collecting
24 samples and going over all of the parameters that we've
25 tried to refine.

1 So I don't think you're going to learn
2 anything that you don't already know. There is a
3 possibility that you will, but I'd say the chances are
4 you won't. I think what you're really going to get out
5 of this plan is to have a better feel for how much we
6 read into a data study, and you may actually come up with
7 some ideas about things that you can read into a data
8 study that we have just missed, or you may find that
9 there are things that you can't read into a data study
10 that maybe we've tried to.

11 Probably one of the best things that
12 you'll get out of this is, since we have divided the area
13 around the Rocky Flats Plant into sectors in the soil
14 survey and composited 25 samples from each sector, what
15 you may be able to find, since you will find measurable
16 amounts of Plutonium at practically all the locations
17 that are on that map, I think you'll get a good sense of
18 variability even over short distances.

19 And where, you know, we use the
20 standard deviation on the measurement as probably a
21 pretty good proxy for variability within the sector, you
22 will actually have some real data that will give you not
23 just a standard deviation on a measurement but a standard
24 deviation on a population of samples, and that, I think,
25 will be very constructive and useful.

1 DR. SCHONBECK: May I paraphrase that?
2 Are you saying that we're basically doing the same thing
3 you did and that what we'll get out of this is our own
4 personal involvement and, therefore, understanding of
5 what's sampling is about?

6 MR. TERRY: That will probably be where
7 the biggest payoff will be.

8 DR. SCHONBECK: And that means that--

9 MR. TERRY: And like I said, from a
10 scientific standpoint, I think the most important thing
11 you'll add will be looking not just at some assumptions
12 about the variability within an area on a map, but you'll
13 actually have some real measurements where you'll be able
14 to look at the variability of the population of your
15 samples.

16 DR. SCHONBECK: Well, you have that as
17 well.

18 MR. TERRY: Really, not so much,
19 because what we have done is gone out to a number of
20 locations and composited them. And you will be looking
21 not just at--let's say, for example, you'll be looking
22 not just at an average or a composite of 25 samples;
23 you'll actually have half a dozen samples within a same
24 area that we would identify on our map, and you'll be
25 able to see the variability across those half a dozen

1 samples.

2 MS. ELOFSON-GARDINE: Are your sectors
3 ten-acre sectors?

4 MR. TERRY: No. These are maps that
5 were used in the field and they're fragile and they've
6 been pretty well used. I think all of you are familiar
7 with how we have divided the Rocky Flats Plant vicinity
8 into different areas. And, say, within an area here--
9 this is Marshall Lake for your reference--within an area
10 of this sector here, there were 25 samples.

11 MS. ELOFSON-GARDINE: Concentric all
12 the way around?

13 MR. TERRY: There's 13 sectors on the
14 map altogether. In this circle here you see 1, 2, 3, and
15 4 sectors, then 5, 6, 7, 8, and then 9, 10, 11, 12 and
16 13. And within each of those sectors 25 sub-samples were
17 composited for an analysis. If we were to analyze each
18 of those samples, our analysis costs would be 25 times as
19 much, and our analysis costs for each year are, in
20 current dollars, roughly 25- to 30-thousand dollars. So
21 multiplying that by a factor of 25, and before you know
22 it, you're talking about the price of a new car.

23 MS. ELOFSON-GARDINE: Price of what?

24 MR. TERRY: So anyway, controlling the
25 cost and working within the resources we had was one of

1 the motivating factors for how we designed our survey,
2 obviously. But what you'll be able to do, as I look at
3 that map, say within this area here where you will easily
4 find measurable amounts of Plutonium, you might have half
5 a dozen samples and you will see the variability in the
6 concentration that you will find.

7 My guess is that, generally, there will
8 be a trend toward higher concentrations as you get closer
9 to the plant within a sector, just as there's that kind
10 of a trend over the entire survey that we have. And you
11 may even find, because we found that when we added some
12 fine detail to this survey, you may even find that as you
13 get off of the primary direction from which Plutonium has
14 blown off site, you might see a gradient going higher and
15 then lower as you cross the direction that's east
16 southeast from the plant.

17 And it's also possible that you will
18 find randomly elevated locations and it may be that you
19 can attribute those to operations of the plant or
20 topography or something like that. I don't know. We'll
21 just have to take a look at your results.

22 I think there's value in doing what you
23 want to do, but I think there's quite a bit of value to
24 what we've done in the past as well.

25 DR. LAVELLE: Is some of what Rob said,

1 is that actually an objective that has increased
2 understanding of the problems and limitations and
3 opportunities in soil sampling?

4 DR. BIGGS: I don't think that changed
5 our objective. He simply said that he thinks he feels
6 comfortable that they have satisfied our objective, too.
7 And I guess our attitude is, do we feel comfortable with
8 that?

9 DR. LAVELLE: Only you can answer that.

10 DR. SCHONBECK: Well, the fundamental
11 problem is public perception of the Health Department,
12 or, put in that space, public perception of any
13 institutional agency. And the thing that we bring here
14 that is new or might be added to it is that--and it's not
15 pure because you can trace our money back to DOE--we at
16 least have another attempt at stepping outside that
17 institutional perception. That means that when we go to
18 the public with our experience of the sampling, as Rob
19 points out, then we will be in a much better place to
20 communicate those results.

21 And I think that's really where all of
22 us came from, is the public demand for what is out there
23 and we can't believe the numbers that are there for
24 whatever reason, whether you believe them or not, and
25 that's what we are providing.

1 DR. LAVELLE: Well, you've been sitting
2 over there wanting to talk for a long time.

3 MR. QUILLIN: I just wanted to get back
4 to the economics issue of this, and that is that the
5 technique that the Department has used is a technique
6 which is basically the low-cost option, so to speak, and
7 does not have the high cost of sample taking that you get
8 into when you take a depth samples that Rocky Flats or
9 CSU are taking.

10 Also, on their end they do, in their
11 results, get an idea of the inventory of Plutonium in the
12 sample they're taking, whereas we're looking at the top
13 layer of the soil. So, I mean, there's different
14 purposes here but there's different economics that go
15 along with it, too. And if you're looking at the CSU
16 method, which gets even more labor intensive and cost
17 intensive, I mean, when you have a certain fixed budget
18 you have fewer samples you can take. So there's a
19 balance here, there's a trade-off here as to what you
20 want to do.

21 DR. LAVELLE: Number of samples
22 versus--

23 MR. TERRY: As I look at the old
24 surveys and, you know, I was just a boy, I'd never even
25 heard of the Colorado Department of Health when this

1 survey was begun, and as I look--

2 MS. ELOFSON-GARDINE: How long ago was
3 that, Rob?

4 MR. TERRY: A long time ago. As I look
5 at these old surveys, there was obviously a sensitivity
6 to cost, but it seems to me the surveys were very well
7 designed and that they weren't seriously compromised in
8 terms of cost.

9 I agree with everything Bob has said,
10 not only because he's my boss but because he's my boss
11 for a reason, and that is the fact that he's a very
12 bright guy. Remember, also, that one of the purposes in
13 collecting, first of all, just what you can sweep off the
14 ground with a whisk broom and then going to an eighth of
15 an inch, then finally a quarter of an inch in order to
16 have the survey be more reproducible, that part of the
17 objective there was to increase as much as you could the
18 probability that you would find nay Plutonium at all.

19 Radioactive materials inventory off
20 site from the Rocky Flats Plant was not a primary
21 objective of public health professionals in 1969. What
22 was a primary objective of those people was to find out
23 how far out from the center of the plant or how far out
24 from the plant boundary the Rocky Flats Plant influenced
25 the off-site land, the off-site population. And in order

1 to do that, they wanted to build a survey that would be
2 as sensitive as it could possibly be and as good at just
3 plain finding Plutonium as it could possibly do.

4 I don't necessarily want to recommend a
5 specific sampling technique for all of you. I think
6 that's a question that you now have to address.

7 DR. LAVELLE: Absolutely. Hank?

8 MR. STOVALL: Yeah, just in connection
9 with the history. And not to disagree with anything that
10 Rob said, but this committee started out by doing a
11 literature search on a number of the surveys that had
12 been taken over the years by various people using various
13 methods, various quality control, none of which were
14 directly correlated.

15 Having said that and understanding that
16 EG&G and EPA, or a combination thereof, was doing a set
17 of samples both on site and off site, one of the reasons
18 I think we formed up was to look at a quality check, if
19 you will, of that data, and that was to do an overlay.
20 Take a set of samples on site and off site which CSU has
21 been given the task of doing.

22 When we first started meeting with the
23 public on this, we said, yeah, we'd like to know what you
24 want. And I agree with both Bini and Gale. I think some
25 of it has to be where the public wants it to be and then

1 I think some has to be where the scientific community
2 thinks it ought to be. And I agree with Gale to a great
3 extent, had we started out by saying we're simply going
4 to use local scientific approaches to this, but we didn't
5 say that when we got started so I don't think we can go
6 back on those people from Walnut Creek and Boulder County
7 and anywhere else who want some samples on just a gut
8 check approach.

9 But what I would expect from this is
10 not necessarily a quality validation, because I don't
11 think it's statistically sound necessarily, but,
12 hopefully, a reinforcement of what's around the plant.
13 And I can understand Gale's view on looking at wind
14 patterns and the like. We might find some things out
15 further back.

16 But I don't think we should forget this
17 morning why we formed this committee and what we're here
18 to do, and that is both to reinforce the public on
19 anything they want to do, well, anything they want to do
20 within limits, as well as Gale's point.

21 And as a second reminder, we're doing
22 Phase II of the health studies as a quality check on
23 Phase I. So we're overlaying duplicative processes to an
24 answer of quality control.

25 DR. LAVELLE: I agree, and I think

1 you're absolutely right, that both of those objectives
2 were before the committee from the beginning, and it
3 would be hard to lose track of either one, I think, at
4 this point.

5 DR. SCHONBECK: I don't think Objective
6 1 is a complete throw-away, in other words, from a
7 scientific point of view, because what we should do, in
8 my opinion, is find out where the citizens want to sample
9 and then when we decide, then the next step, from a
10 scientific point of view, take that into account, that
11 those samples would become part of our sub-set and would
12 determine, to some extent, where else we will sample.

13 So I think that it is, as I said, not a
14 throw-away, but let the citizens, the individuals, pick,
15 make their choices first, and in light of what they've
16 chosen, then we can set up the rest of the array.

17 MR. GUILLAUME: This is not meant as an
18 objective, but ChemRisk, in their assessment of surface
19 soils, is going to look at the historical data, and they
20 will use their statistical training and so forth to come
21 up with a map, and the map will have some kind of
22 isopleth design on it, and related to each one of those
23 isopleths will be a confidence, some measurement of the
24 confidence. And given the fact that most of the samples
25 have been closer to the plant rather than far away, as

1 you get farther away, the confidence interval is going to
2 increase.

3 Now, that would maybe be a starting
4 point to say, at this point we are interested in these
5 values.

6 MR. STOVALL: Did you mean to say
7 confidence interval will increase?

8 DR. LAVELLE: It will increase as a
9 percentage.

10 DR. SCHONBECK: As confidence goes
11 down, the interval goes up.

12 MS. ABBOTT: So you mean decrease, the
13 confidence level will decrease.

14 MR. GUILLAUME: Yes. And the
15 confidence interval will increase.

16 DR. LAVELLE: The confidence in the
17 value decreases.

18 MR. GUILLAUME: With that value. So at
19 that point you might say, well, that interval for that
20 isopleth, which is point-something Picocuries per gram,
21 is of great importance to us, so we're not comfortable
22 with that confidence. That may be the point at which you
23 say, well, we need some more samples.

24 MR. TERRY: The State Health Department
25 will also be reformatting its presentation of its data by

1 the end of the summer. We found a statistician at the
2 Health Sciences Center who can not only draw the iso-
3 concentration lines but also give us a map that shows how
4 much uncertainty is associated with the predicted
5 concentration at any location. We should have project
6 finished by the end of the summer, and so the State
7 Health Department's presentation has also been
8 reformatted.

9 DR. LAVELLE: I wonder if we're at the
10 point now where we can start at least listing some of the
11 criteria that we want to use now for choosing our
12 sampling sites. Are we finished with objectives? Is
13 this a pretty good list?

14 MS. ELOFSON-GARDINE: Shall we take a
15 five-minute break or something?

16 DR. LAVELLE: You want to take a break?
17 This is just getting exciting. That's fine.

18 MS. ELOFSON-GARDINE: I feel like we
19 probably have another objective or two that we haven't
20 been able to identify. Maybe it will help to let people
21 refresh themselves.

22 DR. LAVELLE: Okay, that will be fine.
23 We probably should have had a break earlier. You should
24 remind me of that.

25 (Whereupon, a recess was taken.)

1 DR. LAVELLE: Let's reconvene, take
2 care of things, and close this up if we can.

3 What I would request is that we kind of
4 wrap this up fairly quickly right now and set another
5 meeting date. I'm afraid there are some people that have
6 afternoon obligations and are getting ready to leave and
7 so our already small group is going to get a lot smaller
8 fairly quickly here, so maybe if we could just wrap this
9 up, decide how and what we want to do next time quickly.

10 MS. ELOFSON-GARDINE: Should we set our
11 meeting first so that those people that have to go don't
12 miss--

13 DR. LAVELLE: That's a good idea. When
14 would be a good time for another meeting? I think that
15 we should--just my opinion is that we should meet
16 probably fairly soon again. We're getting into the point
17 where if we're actually going to sample this summer, we
18 need to keep moving ahead fairly rapidly with this, I
19 think. So if that's agreeable--

20 MR. MARSH: How about June 7?

21 DR. LAVELLE: Greg mentioned June 7.

22 DR. MORIN: Tuesdays and Thursdays are
23 the only day that Niels can be here.

24 MR. MARSH: Is that right? Tuesdays
25 and Thursdays?

1 DR. MORIN: The 8th would work. Would
2 that work for you?

3 DR. SCHONBECK: Actually, I'm not in
4 summer school by the 7th so that's a possibility.

5 MR. MARSH: Okay, so the 7th would
6 work?

7 DR. LAVELLE: I'm unfortunately going
8 to be in Montana on the 7th so I won't be here.

9 DR. MORIN: Would the 8th or the 10th
10 work for everybody?

11 DR. BIGGS: 8th would be better for me.

12 DR. MORIN: Okay. Paula?

13 MS. ELOFSON-GARDINE: 8th would
14 probably be better for us, too.

15 MS. ABBOTT: Will you be back?

16 DR. LAVELLE: I will be back.

17 DR. MORIN: Greg?

18 MR. MARSH: Yeah.

19 DR. MORIN: 9:00 to 12:00 here on the
20 8th.

21 MS. ELOFSON-GARDINE: Is the room open?

22 DR. MORIN: I'll have to check. Since
23 now it's really boiled down to this small group, we could
24 probably also have access to the board room.

25 MS. ELOFSON-GARDINE: Well, the

1 homeowners hopefully will come and want to take part in
2 the next session so we can try to assimilate the input of
3 everybody.

4 MS. LOCKHART: Some people like Bob
5 Brockmann I think will come back.

6 MS. ABBOTT: Jim Fisher was out of town
7 today. That's why he couldn't come.

8 DR. LAVELLE: Ann, you had said that
9 you might have some help to call people beforehand this
10 next time around?

11 MS. LOCKHART: Yeah. We could try.
12 We'll do that.

13 DR. LAVELLE: We'll try not to depend
14 only on the postcard notices the next time around and try
15 to make some phone calls to people, too.

16 MS. ELOFSON-GARDINE: And if someone
17 could call some of the Walnut Creek homeowners people,
18 that would be very helpful.

19 DR. LAVELLE: Basically, we'll try to
20 hit everybody on the list.

21 MS. LOCKHART: There were two letters
22 that went out and then a follow-up phone calls for those
23 who didn't respond. I think Janette said on her form
24 that she had a conflict on this date.

25 MS. ABBOTT: And I think Lucy's out of

1 town.

2 MS. ELOFSON-GARDINE: So if somebody
3 can contact some of those people.

4 DR. MORIN: Okay, June 8, 9:00 to 12:00
5 here.

6 DR. LAVELLE: What date we were going
7 to look at for the second tour?

8 DR. MORIN: The 20th of July.

9 DR. LAVELLE: So I'll call up there and
10 see if we can set that up.

11 As far as next time, Paula had
12 indicated that she thought we weren't quite ready to
13 leave objectives yet, so I think maybe first off we'll
14 review what we have up here for objectives and then
15 continue the discussion and see what else we need to put
16 up there.

17 I was thinking perhaps it might be good
18 to have someone come that knew a lot about the mobile
19 HPGE detectors so we could get a better feeling for what
20 was possible and what was not possible with kind of a
21 mobile screening to try to locate our samples.

22 Are there any other suggestions of some
23 people that we might need other information that we
24 should try to gather between now and the next meeting?

25 MS. ELOFSON-GARDINE: I think Ron

1 Reimer is the one that's in charge of the mobile HPGE.

2 DR. LAVELLE: You think we should try
3 to get him?

4 MS. ELOFSON-GARDINE: He's had a lot of
5 experience.

6 DR. MORIN: Who is he?

7 MS. ELOFSON-GARDINE: Ron Reimer, R-e-
8 i-m-e-r. He's at the wind studies area. They've got a
9 trailer to the west of the security buildings.

10 DR. MORIN: And he is with EG&G?

11 MS. ELOFSON-GARDINE: Yeah, he's an
12 EG&G employee. But he's currently in charge of that
13 remote sensing lab mobile unit.

14 DR. LAVELLE: So that would be a good
15 one to get. We'll try to again have Mike and Jim or
16 someone else from CSU down to talk about soil sampling
17 and maybe give us an idea of effort, cost, and those
18 kinds of things, if we need to talk about those some
19 more.

20 MS. ELOFSON-GARDINE: Different
21 methodologies, perhaps.

22 DR. LAVELLE: Different methods. And,
23 clearly, Bob and I were talking during the break there.
24 There's going to be some trade-offs here. If you want to
25 do real extensive sampling, you can do that but probably

1 in that Remedy Report is it does go through in reviews
2 and fairly extensive fashion all of the historical
3 sampling that's been done in and around--maybe not all of
4 it but a great deal of it.

5 MS. ELOFSON-GARDINE: If you could get
6 a copy for the Cleanup Commission, these guys would have
7 access to it.

8 MR. MARSH: Well, I would like to have
9 a copy of it on disk, not in hard copy. I don't want it
10 in hard copy. I want it on disk.

11 DR. MORIN: If I can get that.

12 MR. MARSH: It's already on magnetic
13 track. Nobody uses a typewriter. They haven't used
14 typewriters for years.

15 DR. BIGGS: I'd like a copy of it.

16 DR. MORIN: Okay. Six. I'll get seven
17 copies of it. But, like I say, I may not have it to send
18 it to duplication. It may take me until the next meeting
19 to get it back, something that thick.

20 MS. ELOFSON-GARDINE: We want to make
21 sure they use double-sided copies of recycled paper.

22 DR. LAVELLE: Don't count on it. I
23 think it was double-sided, though. I reviewed the draft
24 of that before I left EPA, actually.

25 MS. ELOFSON-GARDINE: Then they can

1 also copy on the three-hole paper.

2 DR. LAVELLE: I think it is in binders,
3 actually.

4 DR. MORIN: They'll give me a copy and
5 I'll have to have it done, is basically what it is, and I
6 will request recycled, double sided.

7 DR. LAVELLE: Okay. Any other business
8 that we have left out?

9 MR. MARSH: Yeah, I have a point I'd
10 like to make. When the samples are taken, I think it is
11 important that there be very clear photographic
12 documentation of each sample point made with a medium
13 format camera or larger on a tripod or the equivalent.
14 We don't want any scratchy drugstore photographs here.
15 And they don't cost anything--doesn't cost anything more
16 to do it right. So I would like to see at least one
17 photograph of each point when the sample is taken far
18 enough away from the sampling point where it will show
19 the flora and fauna and whatever else happens to be in
20 the immediate vicinity.

21 MS. ELOFSON-GARDINE: Show how
22 relatively undisturbed it is, you mean?

23 MR. MARSH: That's correct, yeah. And
24 it should be in high resolution color emulsions.

25 DR. SCHONBECK: I'll second that.

1 DR. LAVELLE: Yeah, that is a good
2 idea.

3 DR. MORIN: Okay, just last minute
4 things. This newsletter will be going out today for
5 anybody who's interested in copies. The Health Advisory
6 Panel agenda for those of you who don't have it.

7 MS. LOCKHART: And a couple copies of
8 the new release.

9 MS. ELOFSON-GARDINE: In case you guys
10 are unaware, the first day of HAP meetings is right on
11 top of an all-day symposium that most of the rest of us
12 are going to be at the first day. You're not going to
13 have jack for people that can attend.

14 MS. LOCKHART: What is the symposium?

15 MS. ELOFSON-GARDINE: It's on various
16 incineration methodologies and alternatives, like
17 observation of Supercritical, different kinds of
18 Supercritical water applications.

19 MR. MARSH: Alternatives to
20 incineration.

21 MS. LOCKHART: Where is it?

22 MR. MARSH: It's going to be at--where
23 is it?

24 MS. ELOFSON-GARDINE: It's down there
25 on Union.

1 DR. BIGGS: It's at the Sheraton Denver
2 West, 360 Union Boulevard. It goes from 8:00 a.m. to
3 5:00 p.m. Put on by EG&G.

4 MS. ELOFSON-GARDINE: We have people
5 coming from all over the region for this. And we told
6 them a month ago that they were doing it right on top of
7 the HAP meetings and they didn't want to reschedule. So
8 you guys are going to have a lot of people that would
9 have been at the HAP, so if you have any significant
10 discussions that you feel you want to have participation
11 in, you may hold it off until the next day.

12 MS. LOCKHART: We didn't know anything
13 about it.

14 DR. LAVELLE: Thank you.

15 (Whereupon, at 12:10 p.m. the
16 proceedings in the above-entitled matter were concluded.)
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CERTIFICATE

This is to certify that the attached proceedings before:
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Official Reporter

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